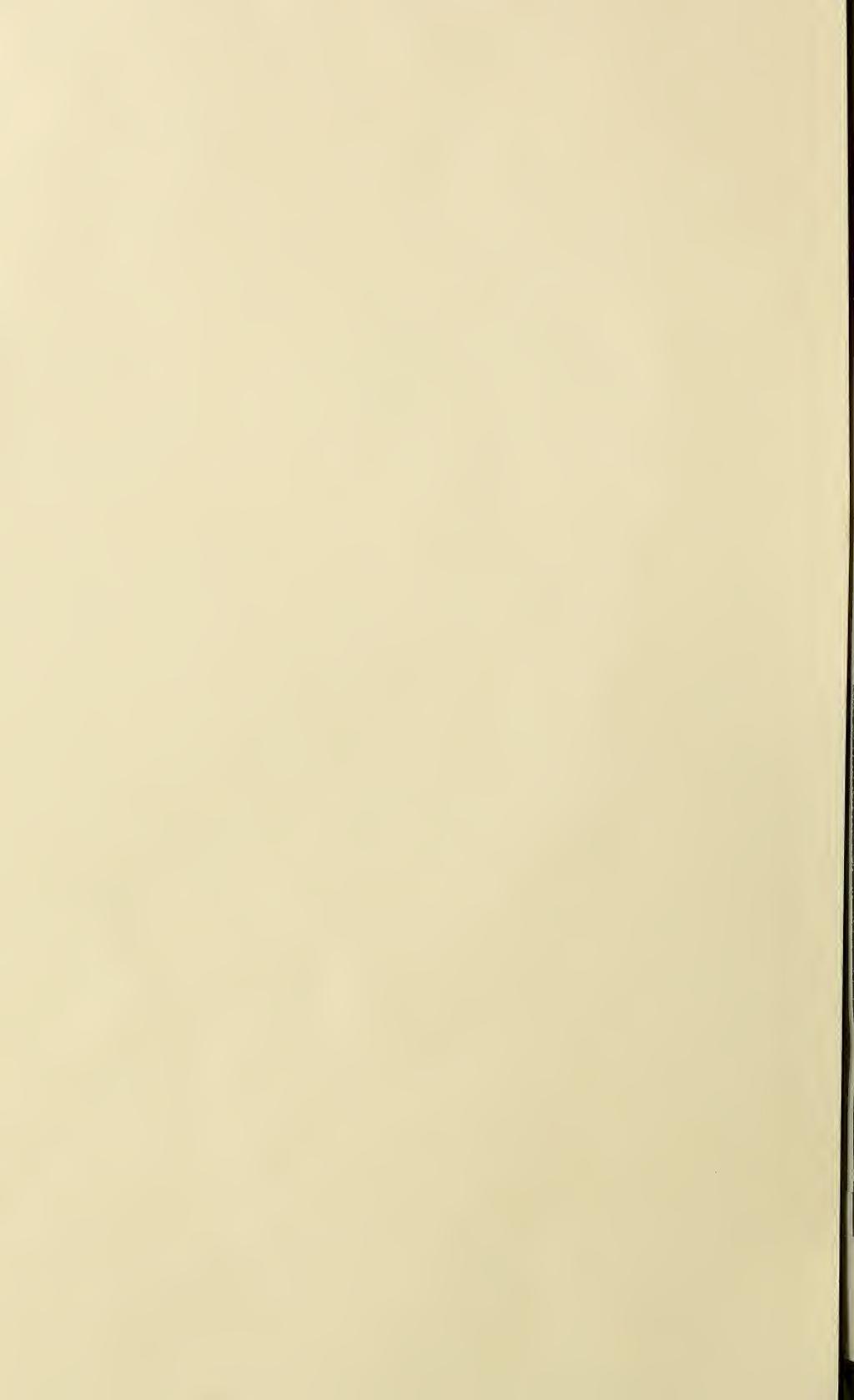


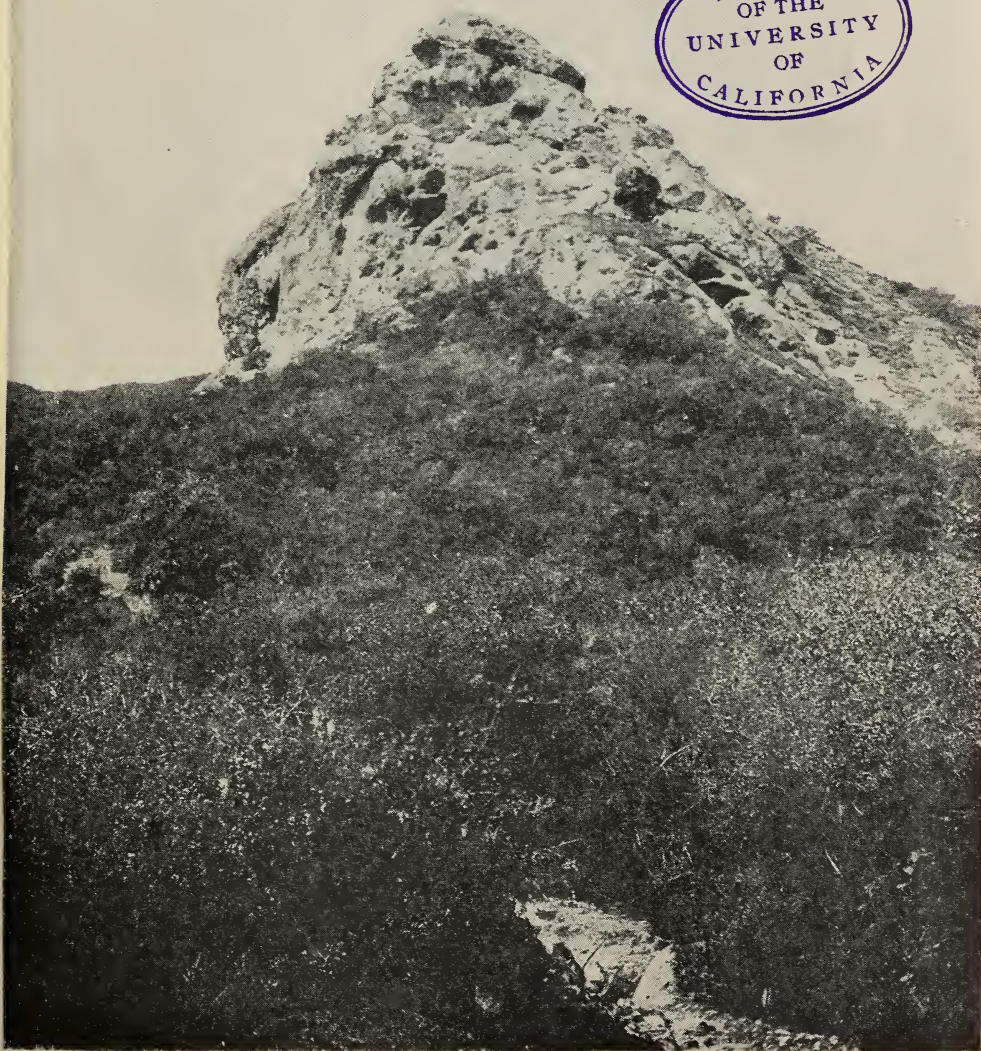
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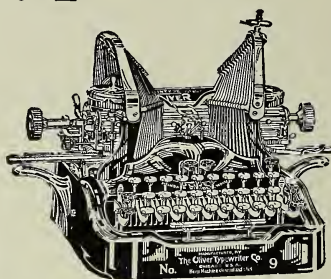
Gleanings in Bee Culture



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Gleanings in Bee Culture

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NO. 21

EDITORIALS

Who Invented the Quadruple Winter Case?

MR. JACOB ALPAUGH, of Stratford, Ontario, Canada, seeing what we had to say on page 697, Sept. 1st issue, about the origin of the new or old method of wintering bees, four in a case, and that we did not know who invented it, writes: "I invented it, and have wintered all my bees in that way for the last 25 years."

Mr. Alpaugh is an all-around genius. He has invented a good many things, and it would not be at all surprising if he were the first to devise this winter-case system of wintering, although the principle of a tenement hive, four colonies to the hive, was used by us 35 years ago.

A Celebrated Bee-rock near Pasadena, California

WHILE in California last winter we were taken on a number of automobile tours among the beekeepers. On one occasion Mr. and Mrs. F. R. Buchanan, of Glendale, Cal., picked us up, together with Mr. and Mrs. Frank McNay, of Pasadena, Cal., and motored over to Griffith's Park, located about six miles from Los Angeles, and about two miles from Lindale. This park contains 3000 acres of land, of mountain scenery, of beautiful drives, and zoological gardens; but what is of more interest to beekeepers is that it has the largest beehive, possibly, in the world, and several beehives. But reference to those will be made at another time.

Mr. Buchanan was very anxious that we should see this rock that is located on an elevation of land that makes it stand out where it commands a view of all the country round about.

No matter at what angle the observer may be located, he will be able to see in the rock all kinds of fantastic shapes—faces of men and animals. The rock has a great many cavities in it, and the arrangement of these cavities in some cases has a sinister look. In these cavities are located colonies

of bees, some of which are probably enormous in size. Apparently no one has ever explored this rock or made any attempt to take the honey, as it is very difficult of access; but bees can be seen flying in at the various apertures in the rock.

We approached it as close as we could, and with our large kodak took a view of it. The result is shown on the front cover page of this issue.

Mr. Buchanan is an old traveling salesman. He made enough money so he has comfortably retired, and he and Mr. McNay are two beekeepers who keep bees for pleasure as well as for profit. At one time Mr. McNay was one of the most extensive beekeepers in Wisconsin. He was once also one of the largest honey-producers in California; but of late years he has taken life easy, as he says, and now plays with his carpenter tools and a single colony of bees. Mr. Buchanan has some thirty or forty colonies; and if there ever was a bee enthusiast in the Golden State, Mr. Buchanan is the man.

In our next issue we shall give a picture of the two men dangerously near the entrance of a beehive.

A List of Government Publications on Bees

THE following letter from Dr. E. F. Phillips will explain itself:

Mr. E. R. Root.—You will find enclosed a list of the publications of interest to beekeepers that are for sale by the Superintendent of Documents, Government Printing-office, Washington, D. C. This list will be of interest to beekeepers who do not know just what is available. Copies may be obtained on request to the Superintendent of Documents.

E. F. PHILLIPS,

In Charge Bee Culture Investigations.
Washington, D. C., Oct. 18.

The list of bulletins referred to is as follows:

ANATOMY of the honeybee. 1910. 162 pages, illus. (Entomology Bureau. Technical Series 18.) Paper, 20c.

APICULTURE.

Report of meeting of inspectors of apiaries, San Antonio, Tex., Nov. 12, 1906. 79 pages, 1 plate. Entomology Bulletin 70.) Paper, 15c.

- Contents.—Bacteriology of bee diseases.—Present status of investigation of bee diseases.—Apiary inspection in New York State.—American foul brood on Pacific Coast.—History of bee-disease inspection in Wisconsin.
- Status of apiculture in United States. 1909. Pages 59 to 80. (Entomology Bulletin 75, pt. 6.) Paper, 5c.
- BRES. 1911. 48 pages, illus. (Farmers' Bulletin 447.) Paper, 5c.
- DISEASES.
- Bee diseases in Massachusetts. 1908. Pages 23 to 32, map. (Entomology Bulletin 75, pt. 3.) Paper, 5c.
- Destruction of germs of infectious bee diseases by heating. 1914. 8 pages. (Agriculture Bulletin 92.) Paper, 5c.
- Historical notes on causes of bee diseases. 1912. 96 pages. (Entomology Bulletin 98.) Paper, 10c.
- Occurrence of bee diseases in United States, preliminary report. 1911. 25 pages. (Entomology Circular 138.) Paper, 5c.
- Relation of etiology [or] cause of bee diseases to treatment. 1908. Pages 33 to 42. (Entomology Circular 135.) Paper, 5c.
- Treatment of bee diseases. 1911. 22 pages, illus. (Farmers' Bulletin 442.) Paper, 5c.
- FOUL BROOD. State and Territorial laws relative to foul brood. 1906. Pages 184 to 200. (From Entomology Bulletin 61.) Paper, 5c.
- HAWAII. Brief survey of Hawaiian beekeeping. 1900. Pages 43 to 58, illus, map. (Entomology Bulletin 75, pt. 5.) Paper, 15c.
- HONEY.
- Chemical analysis and composition of imported honey from Cuba, Mexico, and Haiti. 1912. 21 pages. (Chemistry Bulletin 154.) Paper, 5c.
- Comb honey. 1912. 47 pages, illus. (Farmers' Bulletin 503.) Paper, 5c.
- Hawaiian honeys. 1908. 21 pages, illus. (Hawaii Agricultural Experiment Station Bulletin 17.) Paper, 5c.
- Honey and its uses in the home. 1915. 26 pages, illus. (Farmers' Bulletin 653.) Paper, 5c.
- Production and care of extracted honey; Methods of honey-testing for beekeepers. 1907. Pages 1 to 18. (Entomology Bulletin 75, pt. 1.) Paper, 5c.
- MASSACHUSETTS. Beekeeping in Massachusetts. 1909. Pages 31 to 109, illus. (Entomology Bulletin 75, pt. 7.) Paper, 5c.
- POLLEN. Behavior of honeybee in pollen-collecting. 1912. 36 pages, illus. (Entomology Bulletin 121.) Paper, 5c.
- PORTO RICAN BEEKEEPING. 1914. 24 pages, illus. (Porto Rico Agricultural Experiment Station Bulletin 15.) Paper, 5c.
- QUEEN BRES. Rearing of queen-bees. 1905. 32 pages, illus. (Entomology Bulletin 55.) Paper, 5c.
- SACBROOD, disease of bees. 1913. 5 pages. (Entomology Circular 169.) Paper, 5c.
- TEMPERATURE.
- Temperature of bee colony. 1914. 29 pages, illus. (Agriculture Bulletin 96.) Paper 5c.
- A study of the effect of temperature on bees.
- Temperature of honeybee cluster in winter. 1914. 16 pages, illus. (Agriculture Bulletin 93.) Paper, 5c.
- This bulletin presents studies of bees as affected by temperature conditions during winter, and is of special interest to beekeepers in the North.
- WAX-MOTHS and American foul brood. 1907. Pages 19 to 22, illus. (Entomology Bulletin 75, pt. 2.) Paper, 5c.
- WAX SCALES. Manipulation of wax scales of honey-bee. 1912. 13 pages, illus. Entomology Circular 161.) Paper, 5c.

of Agriculture. We have gone over it carefully, and only regret that it could not have been issued in September. As it is, we hasten to place some of the material in it before our readers.

The authors estimate that the beekeepers of the United States lose at least a tenth of their colonies every winter; and that the losses *may* reach a half and sometimes more in some sections. These losses, they believe, could be reduced to less than one per cent.

We hope that they are right; but it is our opinion, based on an observation of thirty years, that, even if their directions are carefully followed, there will be some winters in some localities when the losses will be heavy. However, we are frank to admit that a large percentage of the losses is due to ignorance of the very principles set forth in this bulletin, which principles we believe are correct. We therefore recommend every beekeeper to send at once, either to Dr. E. F. Phillips, Department of Agriculture, Washington, D. C., or his congressman for a copy of Farmers' Bulletin No. 695.

CAUSES OF WINTER LOSSES.

In reference to the causes of winter losses this statement is made:

THE CAUSES OF WINTER LOSS.

The causes of the death of individual bees or of a colony of bees in winter, barring unusual accidents, are only two in number: (1) Inadequate stores and (2) excessive heat production. The numerous factors usually given in the literature on the subject as entirely distinct fall into these two classes, except for some that are usually given which the authors do not believe to be operative.

Doubtless some of the old veterans will take exceptions to this: but if they will study the matter carefully they will see that they are the fundamental causes. Every one will agree that the stores should be adequate in quality and quantity. There can be no controversy about this; but when all the other causes are summed up under the three words "excessive heat production" there will be more or less dissent. Let us see.

Some may say that it is not "excessive heat," but cold that kills the bees; and this cold may be due to continuous severely cold weather or to a lack of packing or insulation. The authors showed last winter by a series of experiments that cold causes excessive heat generation. The effort of the cluster to generate its own heat, which it can do, causes increased activity; activity causes a heavy consumption of stores, and this brings on dysentery. It is seldom that a good colony freezes to death by sheer cold. Death is, 99 times out of 100, caused by dysentery as a result of increased activ-

The Fundamental Principles of Good Wintering Outdoors

FARMERS' BULLETIN No. 695, entitled "Outdoor Wintering of Bees," by Dr. E. F. Phillips and G. F. Demuth, has just been sent out by the United States Department

ity. Examination of the hives where bees have died, in 99 cases out of 100, if not 999 out of 1000, shows hives to be soiled by liquid feces.

HEAT GENERATION BY A CLUSTER OF BEES.

While the authors do not make this statement, we believe it to be in harmony with their teachings. In order that the reader may better understand the subject of heat generation, if he has not already read page 789 of our volume for last year, and pages 49 and 93 of this year, we quote all that is said in the bulletin on this subject.

EXCESSIVE HEAT GENERATION.

It was first shown by the authors in the bulletin to which reference has been made that at hive temperatures between about 57° and 69° F. a normal broodless colony of bees does not form a cluster, but the bees remain inactive on the combs. When the temperature of the air immediately surrounding the bees (not the temperature of the air outside the hive) falls to 57° F. or lower, they form a cluster, and those in the center begin to generate heat by muscular activity, while those in the outer portion serve as insulators by crowding close together, usually with their heads toward the center of the cluster. The innermost portion rapidly acquires a temperature considerably higher than that of the air about the bees before clustering was necessary, often going to 90° F. in normal colonies and higher in abnormal ones. The number of bees engaged in heat production increases as the outer temperature falls, and the insulating zone is consequently decreased in thickness, but becomes more compact. The entire cluster becomes smaller as the outer temperature falls.

If bees can be kept in an environment such that the temperature of the air immediately surrounding them is 57° F. or slightly above, they are saved much unnecessary and unprofitable labor. To the theoretical objection that bees need exercise, it is necessary only to state that the authors have so wintered bees in a cellar as well as outdoors with wonderfully successful results. If bees are kept in a cellar under the best conditions the results are excellent; but it is not proposed to discuss this more complicated phase of the subject here. If wintered outside in a packing-case, with abundant insulation, any heat generated escapes slowly and the temperature of the air in the hive rarely falls below 55° F. If inadequately protected, the temperature of the hive can not be kept so high, and the bees must generate much more heat. In single-walled hives it is common for the temperature of the air around the cluster to fall to freezing or lower, in which event the bees generate an excessive amount of heat, and perhaps die when they are no longer capable of the necessary muscular activity. The necessity of packing is thus made clear, and in any locality in which the outer temperature often falls to 40° F. or below it is desirable to protect bees to conserve their vitality. If the temperature should fall to 40° F. only a few times during the winter, this would not be serious enough to make insulation necessary. It is obvious, however, that winter protection is beneficial throughout practically the entire United States.

If the reader will peruse the foregoing very carefully he will be able better to understand why "excessive heat production" is the direct cause of the death of the bees. Of course it cannot be denied that cold is the real cause of excessive heat generation: but cold as already pointed out is not what

usually kills the bees. If the beekeeper can keep the proper temperature in his hives by means of adequate protection, either outdoors or in cellars, there will be no excessive heat generation.

The authors very properly call attention to the importance of young bees in the fall. Old ones soon succumb to the work of heat generation as soon as cold weather comes on.

WEAK COLONIES AND WHY THEY DIE SOON.

Weak colonies cannot stand cold even relatively as well as the strong ones. "Since," say the authors, "the surface of a spherical cluster is proportionate to the square of the diameter, while the volume is proportionate to the cube of the diameter, it follows that a large colony cluster has a relatively smaller surface for radiation of heat than does a small one." It follows, therefore, that the weak cluster must do more work in proportion to its size to keep up the proper temperature, and hence it is plain why they are more inclined to have dysentery than the big colonies.

THE ACCUMULATION OF FECES.

On the question of the effects of the accumulation of feces, the authors say that "Dysentery causes death of bees in winter, so far as has been seen, solely by undue activity and excessive heat production. This detrimental effect is reduced by good stores, but obviously the proper method is to prevent an unnecessary accumulation of feces by preventing a heavy consumption of stores, chiefly by providing a sufficiently high surrounding temperature."

A good queen will better prepare a colony for winter by supplying it with a large force of young bees. She will also furnish plenty of brood in the spring provided the colony is strong enough and the stores good.

METHODS OF PACKING.

On the subject of the conservation of heat and the reduction of expenditure of energy, we feel that we must quote the authors in full; for this question of packing for outdoor wintering is often misunderstood. Here is what they say.

CONSERVATION OF HEAT AND REDUCTION OF EXPENDITURE OF ENERGY.

In outside wintering, the heat produced by the bees is conserved by the insulation of the cluster itself, and also by the insulation of the hive and packing. In the cellar there is less insulation near the cluster, but the cellar itself replaces the packing, and it is in reality simply an insulation. The insulation of the individual hive, of several hives packed together, or of bees in a cellar, serves solely to reduce the loss of heat generated by the bees.

The amount of packing that should be used obviously varies with the climate; and it is impossible to make definite general statements in a bulletin intended for all parts of the United States. There is one

general statement which can be made with safety: The majority of beekeepers do not give sufficient insulation, and no beekeeper ever gave a colony too much. For example, in the relatively mild climate of Washington, most beekeepers winter their bees in single-walled hives. The authors have used a large packing-case holding four hives, two facing east and two west, close together. This case was constructed so as to hold 3 inches of packing below, 5 inches on the ends, 6 inches on the sides, and 8 to 12 inches on top. Colonies wintered in such a case in Philadelphia in 1913-14, and in the apiary of the Bureau of Entomology at Drummond, Md., near Washington, in 1914-15, were in much better condition than colonies left unprotected, and cases of this general type are being constructed for the entire apiary at Drummond, except for such colonies as are used in other wintering experiments. The dimensions here stated should by no means be accepted as best for other localities, especially those further north, where the protection should be heavier, but in this particular packing-case the temperature of the air within the hive but outside the cluster usually stood at about 55° to 57° F., except for a reduction in temperature under one condition to be discussed on the next page. The aim of the beekeeper should be to keep the air about the bees at about 57° F., at which temperature there is no condensation of moisture within the hive, even on the inside of the cover, where it first appears. It might be inferred that if doubt the amount of packing had been used the temperature of the air about the bees would have been too high. This is not the case, for bees cease heat generation when the temperature reaches 57° F. (or even sooner when the surrounding temperature is rising), and the temperature will not exceed 57° F. unless that of the outer air remains higher than that for a considerable period.

Bees well protected and with good stores do not fly from the hive because of the warmth within when the outer air is too cold for them to do so safely. If bees fly at low temperatures (45° to 50° F.), it is an indication that they need a fight because of an accumulation of feces from poor wintering, and does not at all indicate too high an inside temperature because of too much packing. In conclusion, the beekeeper cannot apply too much insulating material to a hive.

It has been found that, even with abundant insulation, the temperature within the hive and outside the cluster is greatly reduced if the packing-case is exposed to wind. During the winter of 1914-15 a record was kept of wind velocity directly over a heavily packed case (with entrances $\frac{3}{4}$ inch by 8 inches), and it was found that a wind with a velocity of 20 miles per hour directly on the case reduces the temperature within the hives practically to that observed in an unprotected hive. The beneficial effects of the insulation were therefore nullified, and the proper temperature within the hive was not regained for several days unless the outer temperature rose considerably. Beekeepers have long emphasized the importance of protection from wind, but the results observed were much more pronounced than was anticipated or than has ever been suspected by practical beekeepers. The ideal toward which the beekeeper should work is to keep his colonies during cold weather absolutely protected from wind, for here again the protection can not be too great. It is entirely erroneous to assume, as some have done, that such protection is not essential in well-packed hives.

There are several types of hives on the market in which the insulation is built in, to be retained throughout the year. There is no objection to the packing in the summer, except that such hives are not convenient for moving and in some other manipulations. Insulation in commercial double-walled

hives is by means of air spaces or insulation, such as sawdust, chaff, broken cork, or shavings. These hives are better for outside wintering than single-walled hives in any part of the United States, but they do not provide adequate insulation at temperatures below about 40° F. Such hives must, of course, be protected from wind, or they are for the time being no better than single-walled hives.

WIND EXPOSURE AND WINDBREAKS.

We wish to call attention to what the authors say in the foregoing on the subject of wind exposure. On this point they are absolutely right. We would prefer to have colonies in single-walled hives with ample windbreaks rather than colonies in hives well packed exposed to a sweep of wind from a mile or more in all directions. We have proved it over and over again, that an apiary on top of a hill, with an exposure on one or more sides, if the winter is severe, will often suffer heavy winter losses when another yard of bees in the same vicinity, well protected from the wind, will come through winter in good condition. But that does not mean that single-walled hives screened from the wind are adequate protection. There should be *both* windbreaks as well as *packing*, or, as the authors put it, insulation.

In the matter of windbreaks, the authors agree with us that a solid windbreak, such as a tight board fence or a house, is not the equal of evergreens or other dense shrubbery.

In the way of insulating materials, the authors recommend sawdust, planer-shavings, or dry leaves, or whatever is handy. Sawdust should not be packed solid; but leaves should be crammed down tight.

BEEES DO NOT SLEEP OR HIBERNATE.

The authors have done considerable work during the last two or three winters. They have shown that bees do not sleep, and that they do not hibernate. When the surrounding atmosphere goes below 57 Fahr., the cluster contracts and activity begins. If the protection is inadequate, the activity will be greater, resulting in more heat generation, a larger consumption of stores, and, finally, dysentery. A colony with dysentery in the month of February, or even in March, in the northern states, is as good as dead in our opinion unless there comes a warm day when bees can have a cleansing flight.

We believe that if the beekeepers of the country will follow the directions given in this bulletin, particularly if they fully grasp underlying principles, they will be able to eliminate a large part of their winter losses. But we doubt if the time will ever come when they can be reduced to one per cent, taking a series of winters covering a period of 25 years.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



P. C. CHADWICK asks, p. 837, whether one of the most important points to be considered in breeding is not disease-resistance. Yes, friend Chadwick, but that takes care of itself, for a colony that yields to disease is not likely to give a big yield. Surely, however, I would not breed from a diseased colony.

A CANADIAN inquirer asks whether I have given in "Fifty Years among the Bees" the way I prevent swarming. I think to no other problem in beekeeping have I given so much thought and effort as to that of prevention of swarming, and the results are given very fully in that book. It gives at least how I try to prevent it, although I do not always succeed.

THE presence of laying workers is not hard to recognize after their brood is sealed; but it is desirable to detect it sooner. The scattering of eggs and unsealed brood is an indication; yet I have known laying workers to fill worker comb just as regularly as the best queen could do it, with one egg in each cell. I think that is likely to be the case when there is little or no drone-comb present. Often the first indication of laying workers is the finding of more than one egg in a queen-cell; yet I have known a good queen to lay more than one egg in a queen-cell in a very few cases. Pollen in a queen-cell is a pretty certain sign—perhaps entirely certain. If you find eggs in drone-cells, especially if more than one egg in a cell, while plenty of worker-cells are unoccupied, you may be sure you have a case of laying workers. The cure? The best cure is to break up the colony.

G. M. DOOLITTLE insists on combs $1\frac{1}{2}$ inches from center to center, p. 796. His good judgment and long experience entitle his views to great consideration. Yet it would cost heavily to depart from the almost universally established $1\frac{3}{8}$, and we should all be willing to concede something for the sake of uniformity. Sometimes, however, the difference is so great that it pays to stand alone; and if Mr. Doolittle thinks so in this case, I respect him for the departure. [This question was argued quite thoroughly twenty years ago. There was a general belief that $1\frac{1}{2}$ is better for store-comb, and $1\frac{1}{4}$ or $1\frac{3}{8}$ for brood-comb. The closer the spacing, the more it discourages the rearing of drone brood. Some even went so far as to argue at the time that $1\frac{1}{4}$ spacing would shut out drone brood

entirely. A great many in England favored $1\frac{1}{4}$ spacing. We know of no one, except for the production of extracted honey, who would space wider than $1\frac{1}{2}$. We decided in our bee-supply department on $1\frac{3}{8}$ as a very nice compromise.—Ed.]

YE EDITOR suggests, p. 790, that, by the newspaper plan of uniting, the bees in the upper hive might smother on a hot day. As a strong colony is not used in uniting, there is little danger; yet it is well to be on the lookout, and so, thanks for the suggestion. [We once placed a comparatively weak colony, that we were treating for foul brood, over a bee-escape board with a Porter bee-escape. The escape was clogged with dead bees, but we did not know it. The day was very hot; and before night the bees smothered, the combs melted down, and the honey ran out between the cracks of the upper and lower stories. Robbing got started, and you'd better believe we had trouble in cleaning that yard of foul brood, and it was two years before we dared to move any bees out of it. For that reason we would feel a little cautious about putting even a weak colony above a newspaper for fear that a hot day might come in October, or several of them, and melt the whole business down.—Ed.]

WESLEY DIBBLE, you say, p. 769, that if you're not mistaken all the introducing-cages require opening the brood-nest for introducing queens and removing cages. In most of my introducing I don't open the hive at all. Without any opening, the cage is thrust into the entrance of the hive, the No. 3 Miller cage being arranged so the bees cannot get at the candy. Two days later the cage is drawn out and the candy exposed. Then the cage can be taken out any time after the queen has left it. [This manner of introducing would be all right with queens bred in the same yard and during warm weather; but in our opinion queens so introduced that have just come out of the mail-bags would not be as readily accepted as the same queens in cages put between the frames of brood near the center of the brood-nest. As a matter of fact, a fresh laying queen can often be let loose into a colony in the same yard just made queenless. The theory seems to be that if the bees do not discover that they are queenless they are not looking for or expecting to find a new laying queen, and the interloper goes on with her egg-laying the same as her predecessor, and the bees apparently none the wiser.—Ed.]

Grace Allen

THE DIXIE BEE

Nashville, Tenn.



half.

Now where should one keep that precious October 1st GLEANINGS—in the regular GLEANINGS file or among the cook-books? They are both clamoring for it. Yes, I know what Solomon said to do to the baby, but I do hate to cut it in

It looks like an early fall here; and if we should have a "regular old-fashioned" cold winter, I fancy it's no more than is due us, as the last two or three have been mild enough. Everybody in this section winters outdoors in single-walled hives, and it will soon be time to look into the question of winter stores.

One day early in October, while we were tramping through the autumn sunshine, in the old deer park of the once famous Belle Meade farm, looking for nuts, we came upon great stretches of white aster and goldenrod. There were plenty of bumblebees and butterflies on them both, but not one honey-bee could we find.

I have read of bees and chickens not living in perfect accord. Our half-grown Rhode Island Red chicks wander around among the hives, snapping flies off the alighting-boards, and never trouble the bees. Nor, apparently, do the bees trouble them. If they are buzzing around too thick, the chick shakes his queer little head, half baby-fuzz and half feathers, and just snaps up another fly. But he makes no mistake about snapping bees. And when, during a recent illness, the water-jars mentioned in a previous page were neglected and allowed to become empty, and the bees, hunting another watering-place, appropriated one of the chickens' drinking-vessels, it was quietly relinquished in their favor. Now they claim it fully as their own.

When I looked into a few hives yesterday I was genuinely dismayed to find a lot of dead brood. There were great patches of sealed brood, with numbers of fully matured bees, heads partly out, dead. I did not have time to go through all the hives nor to examine very thoroughly those I did open, but practically every one of them had more or less of this dead brood. I am at a loss to understand it, unless the suddenly severe weather, that came upon us recently with heavy frosts, chilled it. No signs of

eggs or larvæ either. Brood-rearing evidently stopped almost entirely, if not utterly, for the time, ten days or more ago. But it does seem as though the bees could have kept such mature brood warm. I hope it's nothing worse than the cold weather. Being quite inexperienced in bee diseases I felt at first a wild desire to send immediately for Dr. Ward, our state inspector, for a diagnosis, but refrained for further personal investigation.

FOR BEGINNERS.

As to these winter stores, you want each colony to have from 25 to 30 pounds of honey to winter on. And if it is difficult for you to estimate it, scattered as it is through different combs, just weigh a few colonies until you accustom yourself to the feel of a properly heavy colony. If you have only a few hives, you can easily weigh them all. The hive itself, with bottom-board and cover, and ten combs, will weigh from 25 to 30 pounds (weigh one first yourself, though, and verify—there's nothing so valuable as first-hand knowledge); so with its occupants and the honey for winter you see you should show 55 or 60 pounds on your scales.

The contraption we rigged up when we first wanted to weigh hives was very amateurish; but it did the work and we still have it. We took two stout cords, each long enough to be laid across the top of the hive and reach on each side to the bottom of the bottom-board. To each end we attached a hook that would catch underneath. The two cords are then placed about a foot apart across the hive, so it will balance easily, and the hooks adjusted. Then we slip a strong narrow stick (a short piece sawed from a broom-handle would be good) under the two cords. You see this would make an excellent handle for lifting. The hook of the spring scales is then put under this improvised handle, the whole affair raised clear, and the weight thereof read on the scales.

Another thing: Of course you want to be prepared ahead of time for increase and crops and all that; but don't go putting foundation into a whole lot of frames that you merely *hope* you may use, and then later in the season, with a forlorn hope of getting them drawn, may be stick them in supers on top of some nuclei that won't do anything but gnaw holes in them and leave them dark and stained, and looking as sorry as you will feel.

THE LAMENT OF THE DRONES

BY GRACE ALLEN

No more?

Not ever ever more within the hive

No more to feel its friendly shelter 'round?

No more to share its pulsing peace, alive

With vibrant hum of motion and of sound?
And we so powerful-winged and light of
heart!

Of all this life we love are we a part

No more?

No more.

Not ever ever more within the hive.

An unimaginable end has come.

The things are turning dead that were alive

And all the singing voices turning dumb

And Life herself, who one time bade us be,

Has turned away her eyes, which we shall

see

No more.

And this the end?

No end but this for those uncounted days

Of banquetting, or those mad hours of bliss

We went careening, careless, through the ways

Of miracle and light? No end but this?

No end but this. No proud sustaining thought

Of deed with rapture or with patience wrought—

No end but this.

More and more

The dripping night that stalks without the hive

Draws round us, dread and ghostly, grim and stark;

Within, the deepest shadows are alive

With warmth and fragrance, and the very dark

Dreams day to come. But though the great sun burns

A million dawns awake, the day returns

To us, no more—no more.



The Dixie Bee's source of inspiration.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



No rains of consequence this autumn to date, Oct. 12.

The loquat buds are coming out, and bloom will appear in November, with eucalyptus following closely.

My home demand became so great for good honey that I was obliged to buy that I might take care of local orders. I sold a little too close earlier in the season.

There is said to be a house in the city of Redlands that now holds eight swarms of bees, all of which have entered of their own accord in places of their own selection.

The best honey season for the past fifteen years was in 1905. The first rain that season was on Dec. 31, 1904. This was followed closely by frequent and heavy rains lasting until the first of May.

The "Backlot Buzzer" tells of the troubles of a man who was afraid his bees would get hay fever from working on goldenrod. Come to think of it, I wonder if it could be the bees I found recently under the pepper-trees had sneezed themselves to death.

If all of those recipes for cooking with honey were in the household of every family the results would be good without doubt; but confined to an issue of a bee journal read mostly by beekeepers the results cannot be so widespread. Yet it is a commendable undertaking. If the use of honey for cooking could be put under the fad of style the results would be obtained in a very short time.

The honey season at this date (Oct. 12) may be said to have closed. A few scattering places may be yielding a small amount of nectar, but for the most part we are beginning the consumption of stores rather than the production. Bees in this locality are in excellent condition where sufficient stores have been left for winter. The blueberry has yielded enough to cause a very healthy brood-rearing condition that has

left a good force of young bees with which to enter the winter months.

The day of automobiles as a necessity is at hand. The time was when they were considered a luxury; but as the age grows faster, more rapid means of transportation is an absolute necessity. A man with several apiaries cannot afford to lose time with the ordinary horse as motive power, if he can get an auto.

Dr. Miller, you ask what I do with old combs in transferring as described on page 616. All of good quality are cut out and sold as bulk comb honey. The old combs I melt up for the wax and honey. The solar extractor is the ideal place, for in that both honey and wax can be saved. The honey comes in handy for feeding purposes.

In a certain warehouse in southern California there is a number of cases of last year's honey. Some of the cases are bulged, and leaking from the pressure of sour honey. It does not pay, boys—it positively does not pay to extract nectar. Ripe *clean* honey is the market-builder, and every one should work to that end. Preach it to your neighbor, and, above all things, don't forget it yourselves.

I will venture the opinion that the late rains leaving the white clover in such excellent condition do not in any manner insure a clover crop next season. I have seen just such seasons in the East myself, only to be followed by a cold and almost snowless winter, with dry April and May. The old Indian was asked how the corn crop was going to be. He replied, "Don't ask me—ask July and August." As to a honey crop from white clover, April and May must be consulted.

Another case of American foul brood has been discovered in my Tremont apiary, just two hive-spaces from where a case was removed last spring. The combs and bees will likely find their way to a bonfire as the cheapest way to get rid of a single case. However, I wish it distinctly understood that I do not recommend this process where there are several cases. I will never be guilty of burning a hive while in my right

mind; and no great number of combs should ever be burned. The bees may be killed and the combs melted up, but it is a willful waste to destroy any quantity of wax in diseased combs.

I have not mentioned the sad accident that befell Mr. J. E. Plesants, bee inspector for Orange County. This venerable gentleman was attacked by a vicious bull, and nearly killed. I understand his wife came to his rescue with a pitchfork, and was obliged to inflict terrible punishment upon the animal before she was able to rescue her husband. At present, I am informed, he is able to be about. A mad bull is a frightful enemy, and dangerous. Some fifteen years ago, while out hunting with a brother-in-law I was followed for nearly a mile by one of these animals, but refused to run. I had the privilege of walking backward with a Winchester rifle within ten feet of his head while my brother-in-law held a shotgun in his face. We escaped, but had that fellow made a mean motion he would have been killed on the spot.

Mr. Raleigh Thompson, page 801, Oct. 1, says he "wants to give Mr. Chadwick something to dream about," and then tells something of his family of six. But really, Mr. Thompson, a family of six is "no dream" with me, but has been a serious reality for a number of years. But, laying jokes aside, his main object was to prove that honey is not a luxury. Well, customs make laws, and it is a very common custom to treat honey as a luxury. It is not considered a staple article of food, and is far too seldom included in the daily order for groceries. I remember, when a boy, of an uncle having given my mother some honey, and there was straightway a childish rejoicing in her household because of that honey. Luxury was the only thought we children could consider on the occasion, and it was surely a luxury to us. Just start out peddling honey, and see if it is not considered a luxury by most people. As long as it is treated as a luxury it will of necessity be a luxury.

I agree with Dr. Miller when he says, "It is a common thing to find pollen on the inside of a comb and young brood on the outside." But when I find such a condition I feel that I should like to have found it a little sooner so I might have placed an empty comb next to the pollen side and had it full of brood on both sides. The bees will remove the pollen as Dr. Miller says,

but they are materially aided by being relieved of the necessity of having to remove it. Mr. Doolittle says, page 750, Sept. 15, "Any comb that is to be put between combs of brood should be full of honey, and that honey preferably sealed." In this I do not agree at all, and I would thank no one for retarding the work of my queens in any such manner. Spreading should never be done unless conditions are such as to induce the queen to fill an inserted comb in twenty-four to forty-eight hours.

The net-weight law seems to be coming to the front as a desirable requirement, and is now being commended fully as much as condemned. Now, if we could get a law to compel the use of excluders we would be assuring the public that they were getting clean honey and not larvæ soup. Wouldn't there be a "howl" then? Eventually, however, the cry would die away, and we would be more sure of the cleanliness of the honey we are using, and the public would get a better article. Like all laws it would not be objected to by those who believe excluders to be a necessity and a convenience, but might work an imaginary hardship on those who are conscientiously trying to produce a clean article without the use of excluders. Some of the latter, I am glad to say, do produce as good an article without as with excluders; but they are losing more honey than the price of excluders would come to each year. A careless beekeeper using no excluders brings about a sorry condition at the honey-house.

Mr. Editor, you say, page 746, Sept. 15, "Practically all honey will granulate if given time enough and subjected to alternate heat and cold." Personally I do not believe that alternate heat and cold has any influence on the granulation of honey. The cold has, and it is the all-important factor. If honey (most honey) is kept at an even warm temperature it will never granulate. If kept at an even cold temperature it will granulate just as quickly as if kept warm and then cold. But some kinds of honey will never granulate, regardless of the temperature or its changes—at least it is not very likely to remain on hand a sufficient length of time to granulate. I have a sample of honey from my 1912 crop that has not shown the least sign of granulation, and I shall keep it as a test to see how long it will remain in the liquid state. Bluecurl honey has about the highest chemical freezing point of any to my knowledge, and it will granulate, apparently, hot or cold.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



THE LATE SEPTEMBER FLOW.

Bees in western Colorado stored honey well into September, and in some localities supers of comb honey were filled after the 15th of the month. This late flow materially increased the crop upon the western slope. Taken as a whole, western Colorado had a better crop than the eastern part. The crop was good in parts of eastern Colorado and very poor in others.

Prices have been better than for average seasons: and while the shipments have been going out at a good rate, there is not much indication of a weakening of the market.

The prices secured in eastern Colorado have ranged around \$3.00 a case. In western Colorado, where freight rates are higher, \$2.85 is the highest that comb honey has brought, except for a few shipments. Cash is being paid at the car door for many of the western-slope cars that are being shipped this year.

The associations are not permitted to handle honey or produce for non-members; and as few of the associations are owned by the producers, there is not much produce being handled except by purchase. I am informed, however, that the law is being evaded in various ways, so that produce is virtually handled on commission. Honey, however, seems to be in a class by itself, as cash deals are the rule.

The honey-flow in many parts of Colorado was so slow that none but the very strongest colonies stored honey in the comb-honey supers. Medium and weak colonies packed their brood-nests with honey, crowding out the queens so they could do scarcely any laying. This condition is not good for wintering, as there will be a lack of young bees for winter strength. The men who removed two or three combs of honey from the brood-nest, and replaced them with empty comb, will profit by it this year if it was done early enough.

When finishing packing my comb honey the thought came to weigh each section in a number of cases to see how much above or

below the minimum we were running. One case of each grade will suffice to report upon as representative. The case of fancy honey averaged 14 $\frac{7}{8}$ ounces, or 13 $\frac{7}{8}$ oz. net weight, and it was stamped "minimum net weight not less than 12 $\frac{1}{2}$ oz." The heaviest section weighed 15 $\frac{1}{2}$ oz. net, and the lightest (and only one of them) 12 $\frac{1}{2}$ oz. The case of honey weighed 33 oz. more than the minimum weight called for.

The selling price of fancy comb honey, we will say, is \$3.15 a case. This would average 15 1-6 cents a pound for the honey. If I had given no more than the weight stamped it would have averaged me 16 4-5 cents per pound. Perhaps I am losing money by not stamping the weight nearer what it actually is; but there does not seem to be a great deal of trouble in selling honey when stamped as we are doing.

The No. 1 case is somewhat heavier than the average of this grade. The lightest section weighed 13 $\frac{1}{2}$ oz., and the heaviest 16 $\frac{1}{2}$, and the average weight was 14 $\frac{1}{2}$ oz. with a little over. Three and three-fourths pounds above the minimum stamped was given with this case. The selling price of this grade is placed at \$3.00 a case, which returns 14 $\frac{1}{2}$ cents for the honey actually given; while if no more than the minimum net weight were given the price would be 18 cents a pound.

The No. 2 case weighed 319 $\frac{1}{2}$ ounces—an average of 13 $\frac{1}{4}$ or 3 $\frac{1}{2}$ pounds above the minimum requirements. If the minimum amount of honey had been given in this case, and the price of \$2.85 secured (which is the going price here), the honey would average 17 3-11 cents per pound. The actual honey given averaged 15 3-5 cts. per pound. This honey stamped "net weight not less than ten ounces" brought more money per pound than the other two grades, as you can see by referring back.

The lightest section in this case weighed 11 ounces net, and the heaviest 13 $\frac{3}{4}$.

The question is, "How much more could be secured for this comb honey if the sections did not vary more than one ounce in any one case?" Such a pack would comply with the demand for closer uniformity; and while it would necessitate some more work in packing, it would not be a serious matter.

NOTES FROM CANADA

J. L. Byer, Markham, Ontario



Brood-rearing was very heavy until quite late in the season, and colonies are going into winter quarters with great clusters of what must be mostly young bees hatched in August and September—in fact, many colonies now in

October still have quite a lot of sealed brood. Other conditions being equal, this should mean good wintering and early building up in the spring. Abundance of clover, abundance of young bees, and abundance of good stores in the hives—are we downhearted? No.

"Prices are running anywhere from 15 to 20 per cent lower than last year on all grades of extracted"—editorial, page 784. As mentioned in my notes for Oct. 1, I am glad to say that such is not the case here in Ontario, even if our country is engaged in the great war now in progress. Never before have we had such a keen demand for honey, and this notwithstanding the fact that the wholesalers have handled very little of our product. At least one prominent dealer remarked early in the season that this year "The beekeepers could carry their own stock, and they would buy from them as they need honey." If others have had the same experience we have had, carrying the stock has not been a very long or trying job, and the wholesalers will not have very much honey to handle.

October to date (11) has been cooler than usual, even if we did anticipate a warm fall after so much cool summer weather. Feeding has been a rather slow job, and once again the inverted pail has proven to be the very best feeder for cool weather, as bees would take the feed in this way when they would not touch it in the old-style feeders. We have just finished feeding, and, all told, have used quite a lot of sugar in the different apiaries. At the north yard, which will again winter mainly on aster honey, all the colonies were fed and packed away for winter by Oct. 9, and they can now run their own show for about six months. During that period I am not likely to see the yard more than once; but I suspect they get along just as well as or better than the apiaries do around home that I do more meddling with during these months. Early packing and a dry warm

location may help to explain how our bees wintered so well on aster honey last year, and with this thought in view the same course was followed this fall again. This is not saying that they will winter well on these stores again this winter, but naturally I have not nearly the misgivings on that score that I had a year ago.

Much has been said about the quality of aster stores for table use, and the surplus I obtained this year is much better than I had last season. In fact, I have sold it locally at the yard for the same price as the clover, and in a wholesale way was also able to get a good price. Color was about as good as clover, flavor very good, but body not as heavy as standard, this usually being the case with all late fall honey, I believe.

That special number of GLEANINGS given over to the uses of honey in cooking is timely, and I hope that many will try some of the recipes given. It is a fact that even among beekeepers there is little known, or at least practiced, in the matter of using honey in domestic baking and cooking. That honey is a fine thing for baking various kinds of biscuits and cakes is a fact attested by the large manufacturers of biscuits who use carloads annually. Honey is dearer than sugar, and we may be sure that these manufacturers would not use honey if they could get something "just as good" for less money. I am well acquainted with the manager of one of the largest biscuit concerns in Canada, and he tells me that they simply have to use honey to get goods that will stand keeping for any length of time without drying out badly, as all biscuits, sweetened with sugar alone, will do. Before honey started to get to the wholesale prices that have ruled here in Ontario for the past few years, we used to sell the bulk of our clover honey to the manufacturers; but of late years they use the cheaper honey which mainly comes from Jamaica and is laid down here cheaper than we can compete with. All things considered, this changed condition of affairs has not hurt us much, if any, in the matter of selling our white honey, as the consumption of this has wonderfully increased during the last three or four years, and many families now use from 50 to 200 pounds of honey annually that formerly used little if any.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



FOUNDATION, A CONVENIENCE OR A PROFIT?

"The older writers often speak of comb foundation, but don't tell us whether you use it as a convenience or for the profit coming from its use. Is there enough in either to pay fully for its cost and the labor of putting it in frames and sections?"

The question of the use of foundation is one that is vitally connected with that of wax secretion. Ever since the general introduction of foundation I have had more or less to do with it. At first there was a decided opposition to its use, both on the ground of the suspicion it would create, even though used in the brood-chambers only, and because of the tough bases of that first made, when used in sections for the storing of comb honey. I entertained many doubts about the advisability of using it in sections, and it was a good many years before I could make up my mind that I wanted to use it in that way, preferring to stick to the old method of using natural-comb starters. Then I used it in very narrow starters, and later on in full sheets in the sections, and finally had most of the brood-combs built on it.

I made an observation hive which was so arranged that I could use one, two, or three frames. With this hive I could watch the development of the foundation into comb after a sheet was put in. Foundation accomplishes two things in a very satisfactory manner when carefully used. In the brood-chamber, all worker and straight combs can be obtained. In the sections it can be used as starters, or the section filled so nearly full that the bees will attach the combs more nearly all around than is generally the case where starters of natural combs are used, while it is much more convenient.

In my study of this matter I find that there are times when more than a starter in the sections is practically a waste of the wax contained in the foundation; for, in many instances, the bees simply add their own wax to the imprint for the cells, not even touching the foundation by way of thinning the base or rudimentary cells. With a copious flow of nectar, such as we often have during our basswood bloom, the wax-producing bees are so loaded with their own secretion of wax, that, with no comb to build, they will use this wax in the place of propolis for the filling of cracks and "plastering" up about the hive. At such

times they will apparently do better work in the sections where only starters are used, and give far more brittle and enjoyable comb for eating. But the very quality that makes it less edible is an improvement on its shipping quality, so that the combs in sections, built on full sheets of foundation, will go some distance in perfect order; while in the same shipment, sections having only natural comb containing the honey in them will become sadly broken in transit.

Do not misunderstand me. The product, where sections are filled with full sheets of foundation, even where the bees simply add their own wax to it without any drawing out or thinning, is less edible only on account of a somewhat increased toughness and amount of wax, as the taste is in no way impaired. The amount of thinning depends very much upon conditions. The temperature, needs of comb at the time, whether urgent or not, the amount of wax being secreted, and perhaps other minor points, all have to do with the matter. I hold to the opinion that wax is secreted more or less freely at all times during a flow of nectar, the quantity varying as influenced by the prospect of its need, the presence and number of bees of a proper age, and the state of the flow of nectar. If it is true that wax is usually secreted in sufficient quantities to hold the honey gathered, the use of full sheets in sections cannot pay, viewed from the point of saving of honey consumption in wax secretion. But from the viewpoint of having the combs more perfectly attached to the sections all around, giving a greater freedom from breakage in shipping, foundation becomes of value in marketing honey in distant cities that would not be considered when our section honey was wholly disposed of locally.

Some advocate using foundation in full sheets in the sections to avoid having drone comb, as worker comb gives a nicer finish when capped over. Years ago, before the advent of foundation, drone comb was greatly admired, as it gave a little glimpse of the quality of the honey contained in the combs. With worker comb capped by black bees, a box of buckwheat honey could not be easily told from one of clover. But with drone comb, the thin capping next the cell walls would tell the color of the honey in the combs in the whole box.

There are few successful apiarists who do not think that it pays to use full sheets of foundation in frames and sections.

GENERAL CORRESPONDENCE

HOW TO PRODUCE NON-SEPARATED HONEY

BY ALLEN LATHAM

It is unquestionably easier to produce a fine article with separators than without them; but when the proper precautions are followed, it is not difficult to produce a good marketable product without separators. This article will be devoted to a description of the method I follow.

Several things are absolutely essential to success in producing non-separated comb honey, and perhaps the first of these is the proper setting of the hive. Hives must be absolutely level from side to side, and preferably level from front to back. The last statement is made on the assumption that the sections run parallel to the sides of the hive.

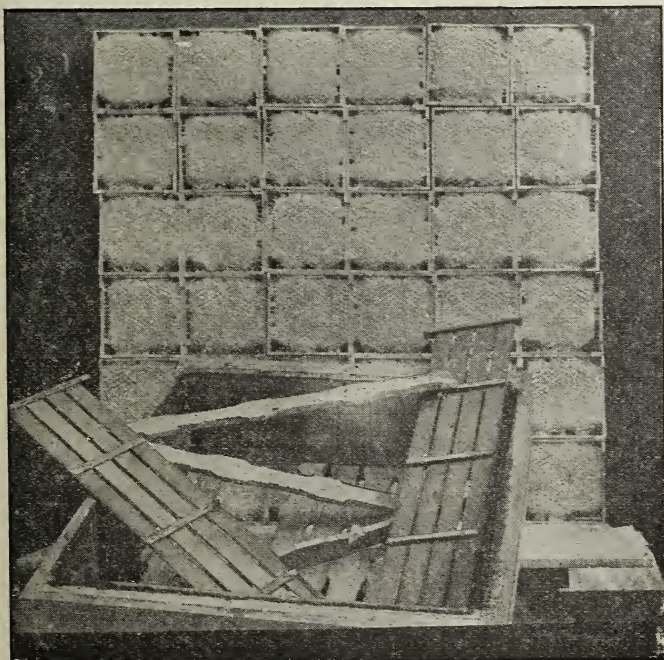
Unless the hive is level from side to side the combs in the sections will certainly swing to one side, and every section in the super will be imperfect. If not level from back to front there is a tendency to the more perfect finishing of one end of the section. Bees naturally build downward; and if downward is toward one corner rather than the bottom of a section, one corner

will get finished before the other. In hot weather, too, the foundation will be apt to buckle or sag toward the lower end of the section.

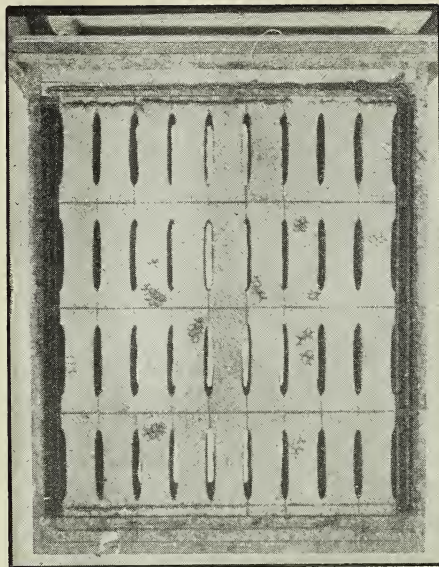
I realize the set determination of most beekeepers to slant their hives from front to back. Their purpose is good, but their execution is poor. The hive should be level. The bottom-board should furnish the slant. Every argument is in favor of the slanting bottom-board. One great advantage of the slanting bottom-board is that the bees have depth beneath the combs at the front, and only a bee-space at the back of the hive. This largely prevents the building of combs beneath the frames. My readers who use that style of bottom-board with two sides, summer and winter sides, will appreciate this. The back half of the hive will frequently be stuffed with drone comb between the bottom-bars of the frame and the floor of the hive. This difficulty and others are overcome by a bottom-board which has a slanting bottom.

Next in importance is a big force of bees.

A small colony of bees will produce good section honey when separators are used, for they cannot build comb beyond the separator, and so each section has its own comb limit. When separators are not used, the bees of a small colony will start on a few sections and will work along building each comb into the space of the next section. Hence each section is bulged. Unless one has mastered the problem of keeping his colonies strong he had better not try to produce honey without separators; or shall I say he had better not try to produce honey at all? When strong, a colony (as soon as the flow starts in) will occupy almost the entire super



I detest section-holders, and use free slats 17 inches in length.



A super just as it came from the hive. Note how little bulging.

at once, and will start every section before any are much advanced. As the work progresses with uniform speed in the several sections, the comb of each has its allotted space, and there is little or no bulging.

Next in importance is the strain of bees. It is almost impossible to produce good section honey with some strains of bees; and, though this peculiarity is not limited to honey-production without separators, it is essential to success in such honey-production. One should not breed from such queens as give bees which do not yield well-finished sections. I do not know why it is; but some bees will not build straight combs, even in natural-comb building. They seem to like curves, and will frill their combs. I think every observer will agree with me in this, just as we all know how some strains will persist in building brace-combs, fastening their combs to the separators, or to the sides of the super, or to each other. Breed entirely from queens whose progeny yield a smooth comb with well-developed sides or edges.

Next in importance we might name the method of using foundation. One can produce almost equally good non-separator honey with either starters or full sheets. For over ten years I produced comb honey without separators, using only starters. I gave up starters because I fully believe that one can get a larger crop by the use of full sheets, and also because when starters are used much drone comb is built and the

queen is very likely to enter the super—always with disastrous results. Section honey with drone comb is, at the best, not so pleasing in appearance to my eye as worker comb. So, if one produces section honey without the use of separators he had better use full sheets of foundation.

Now comes the question of using free hanging sheets and bottom-starters, or of using pieces which fill the section from side to side, and do without bottom-starters. I have tried both methods, and can see nothing but wasted labor in the use of bottom-starters. I will not breed from a queen whose bees will not build comb to the bottom of the section. With the right strain of bees there will be absolutely no need of bottom starters. But there is absolute need of sheets of foundation which fill the section from side to side, or end to end.

I buy foundation which is just four inches wide. I cut it so that there will be a scant quarter-inch space at the bottom of the section—that is, I cut it a trifle longer than $3\frac{3}{4}$ inches. I find that if it is cut longer than this it will sometimes stretch so much in hot weather that it will buckle and cause a bulge. Yet I have produced good sections by using sheets four by four, completely filling the section.

The use of hot-plate machines has been dropped. My sections are all filled by the melted-wax system. Blocks of the right thickness are nailed to a light board, and sections placed on these blocks. The brush from the melted wax is run along each end of the section, and then along the top. I make no effort to see that the foundation is attached throughout the side edges, nor even at the top. If four-fifths of the top and half the sides are attached good results will be assured. The sheet must be exactly in the middle of the section, and the section must be square. When the sections are placed in the super they must not be forced to cause the foundation to buckle or spring away from the walls of the section.

It sounds like a lot of labor to put in foundation this way, but it is labor that pays. I can hire a skillful boy at one dollar or so per day, and he can put up one thousand a day. Under pressure I can myself do about two thousand. After one is used to the work he can do it well and expeditiously. It is essential, however, that the foundation be well made, cut true, and that it has not suffered in shipment. It is an art to make foundation, and it is another art to cut the little sheets for the sections. I do not trust the cutting to any one but myself. I can cut five pounds in about half an hour.

Next in importance is the section. Though good results can be obtained with two-beeway sections, I have adopted almost exclusively the four-beeway section. The passageways at the ends of the sections appear to aid the bees in building the combs true. In their desire to keep open that passage they refrain from building the comb of either section so that it trespasses upon the passage. When sections with two beeways are used, there are often sections which have the combs of one built slightly into the other adjacent section. When taken apart these sections will be dauby. It is less pleasant to handle four-beeway sections; but after one is used to them he forgets all that. Habit should never be allowed to stand in the way of the adoption of an improvement.

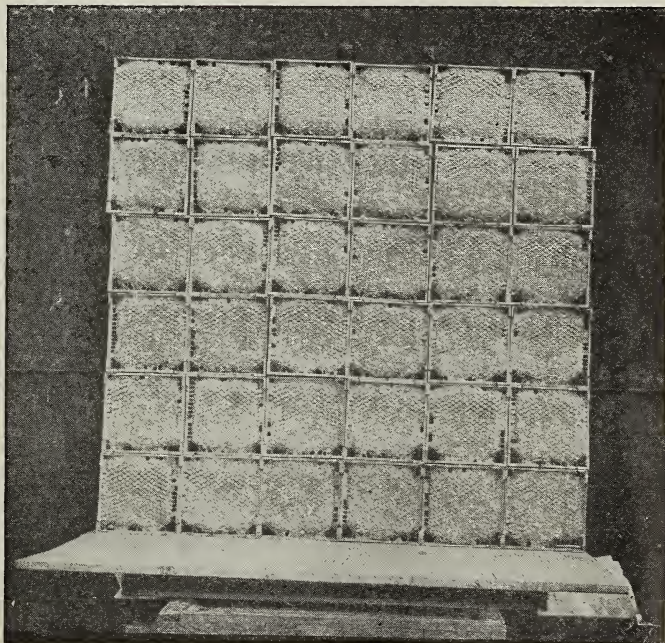
The illustration will show more of my method. I detest section-holders. I use free slats just seventeen inches in length, and my supers are seventeen inches in length inside measure. The bee-space is at the bottom, and the sections are flush with the top of the super. My supers are very light and simple; and as I use outside rims, they are amply protected from the weather. The illustration shows a super with top view and with bottom view, just as it came from the hive. One illustration shows the sections removed and piled to display each. These thirty-six sections shown are the original thirty-six of the super. Their net weights are as follows: One weighed 12 ounces; five weighed 12 1-5 ounces; three weighed 12 1/4 ounces; two weighed 12 1-3 ounces; nine weighed 12 1/2 ounces, seven weighed 12 3/4 ounces, three weighed 13 ounces, two weighed 13 1/4 ounces, and four weighed 13 1/2 ounces. It will be noted that the lightest had 12 ounces of honey, and the heaviest 13 1/2 ounces—a range of 1 1/2 ounces. It should be noted here that sections 1 1/2 inches wide are used, designed to produce a twelve-ounce section. The variation in weight of sections was largely due to the more com-

plete filling of some over others. Some combs were doubtless slightly thicker than others, but not noticeably.

One should study the illustration which shows the supers standing on end with a background of white cloth. If the number of spaces be noted where the cloth can be freely seen though the spaces between the combs, it will be readily seen how little bulging there is. It was impossible to show with the camera all the spaces, but every space was clear. Of course, this was a selected super; but I spent some time before I decided which of several supers to put before the camera.

You can lead a horse to water, but you cannot make him drink. I do not expect to win many over to the production of comb honey without the use of separators; but I have led the way. We are all free to do as we please; but when one produces almost exclusively non-separated honey, it shows that it is not a method to be easily cast aside. My crop this year, with more to hear from, is over 5000 sections, and bee-keeping is my avocation. Those who are so strongly opposed to this method of producing honey might do well to learn how it can be done before they condemn it.

It would not be wise to leave one of the illustrations without a word of explanation. In that the super emptied of its contents is shown, and several separators of the fence



The net weight varied but 1 1/2 ounces.

type appear. Though I have very little use for the fence separators as such, I have a high appreciation of their value as followers. A blanket of bees over the outside rows of sections guarantees completed sections where so many fail to get good results. I have more than once, since I adopted this system, seen sections completed and sealed in the outside rows before

those in the center were completed. I would most earnestly recommend all producers of comb honey to use fences between the sections and the super walls. I use by preference fences one side of which have half a bee-space and the other about $\frac{3}{8}$ inch. Those in the illustration are some made over regulars.

Norwichtown, Ct.

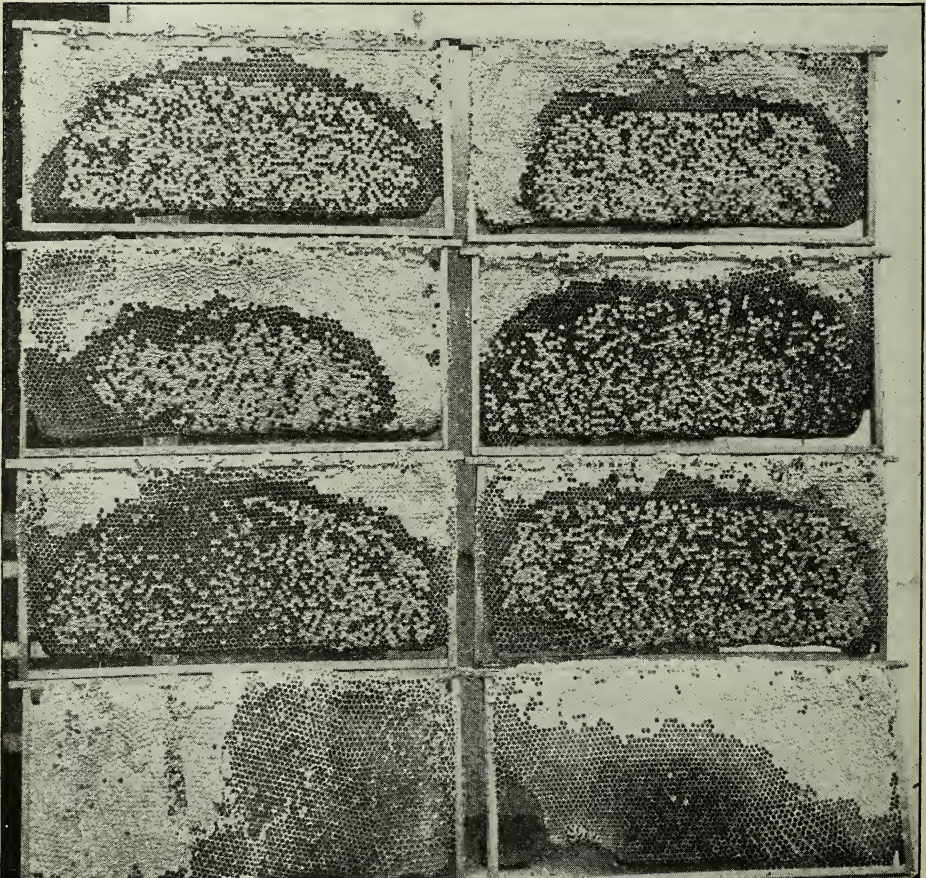
WHAT AILED THE BEES?

BY J. W. ADMIRE

The illustration shows a full set of frames taken from an eight-frame hive belonging to a friend of mine. Now nearly 70 years old, he has kept bees nearly all his life. His colonies have ranged in number from one to probably twenty-five.

One day early last spring he stopped me

on the street and said that nine colonies out of twelve had died out, and he thought they must have "winter-killed," as they were wintered out of doors, but that on examination he found that all nine hives contained quite a bit of honey. We went to the barn where he had stacked the hives up with



I never saw a worse case of American foul brood.

contents. As soon as we entered the barn I noticed a strong scent, and I almost knew before opening a hive that his bees had foul brood.

We looked through the hives, and all were in about the same condition. The investigation showed that his colonies had had American foul brood, the worst kind, and he did not know it. I began to question him, and was astonished to learn that he

never lifted a frame out of a hive to inspect it, and had never seen any disease. I found it hard to convince him that his bees had died from foul brood.

I had never seen a worse case. I photographed the contents of a hive. What impressed me more than anything else was to think that a man could keep bees all his life and yet know so little about them.

Hiawatha, Kan.

ACHORD'S SUCCESS IN SHIPPING BEES IN POUND PACKAGES

BY E. R. ROOT

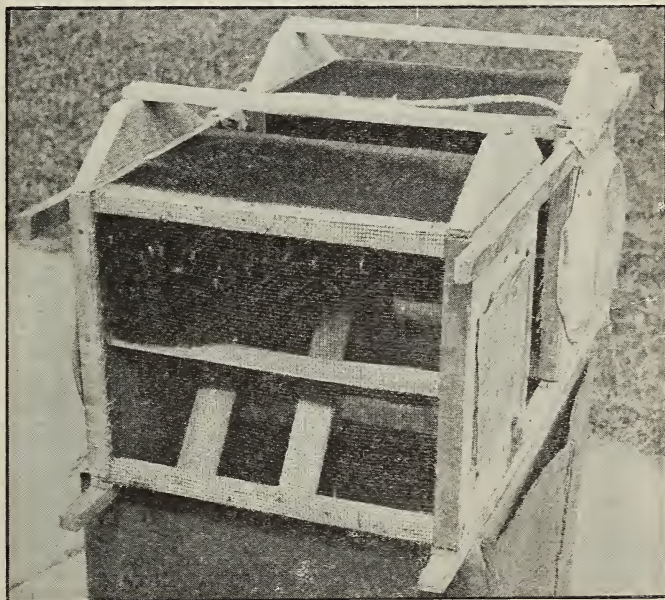
On page 744 of GLEANINGS for Sept. 15 I referred to the success of W. D. Achord, of Fitzpatrick, Ala., in shipping bees in pound packages to points in Canada. He has apparently been more successful than most of us, from the fact that he used a larger cage with more wire cloth. In fact, his cage has two or three times the ventilation of the regular standard cages for holding the same number of bees. This extra ventilation and larger cubic capacity has enabled Mr. Achord during all kinds of weather, hot and cold, to achieve almost perfect success.

As stated in our issue mentioned above, one beekeeper in Canada has come to believe he can buy pound packages of bees from the South as cheaply as he can winter over colonies in the rigorous climate of Canada.

Mr. Achord's pound packages of bees are made up of *young bees* ready for business, while the wintered-over colonies, even though of two or three times the numerical strength, are made up of *old* bees; and it would not be very long after the first flight for pollen and water before the wintered-over colony would be but little stronger than the pound of bees, with the disadvantage that most of their numbers would be bees of the previous fall.

To test out the Achord plan of shipping bees we sent an order to the Fitzpatrick

man for two one-pound packages of bees. These were shipped on Sept. 20. They arrived promptly at Medina, and we kept them for a day. There was scarcely a dozen dead bees in the two packages. We then sent them to Dr. E. F. Phillips, of Washington, with instructions to return them to Medina. He reported that they arrived in



W. D. Achord's cages have two or three times the ventilation of the regular cages for holding the same number of bees.

fine condition, with scarcely any more dead bees than when they reached Medina. They were so fresh and nice that we first thought Mr. Achord had sent us a duplicate shipment, because it did not seem possible that those same bees could make three trips and look as nice as these did; but as events showed they were the same bees that left Alabama on the 20th. We kept them for

three or four days in order to watch them; and before we knew it some of the bees in one of the cages began dying. Examination showed that neither package had a particle of food. We immediately replenished the pans with candy; but it was evident that the bees of one of the packages had suffered considerably. However, we sent them on again to Washington, with instructions to return again. This morning, Oct. 7, they came back, and the one that had not suffered from starvation had suffered a loss of only about 150 bees out of a total number of 5000, or a loss of only 3 per cent, after the five trips of 27 days from Fitzpatrick, Ala., and then on to Washington and back, of two round trips.

The bees in this package are still sweet and nice, and possibly would stand more journeys; but 27 days from the time of shipment is as long a time as any bees would be *en route* in the United States by three times over. It may be reasonably

presumed that Mr. Achord can ship bees anywhere in the United States and most places in Canada.

A closer examination shows why the bees in one of the packages used more food than the other. Its bees had built a piece of comb about as large as the palm of one's hand. This occasioned an additional consumption of stores, and incidentally goes to show that bees can build comb without any other food than pulverized cane sugar and honey. Neither cage contained any water. When proper provision is made for ventilation, water seems to be unnecessary.

The cut shows that Mr. Achord has so designed his package that it is impossible to pile any other stuff on top of it, nor anything near it to shut off ventilation. This is quite important. As the express charges are based on *weight* and not on *room taken* in the express car, the projecting sticks add nothing to the cost of transportation.

THE CYCLONE SYSTEM OF BEEKEEPING

BY DANIEL DANIELSON

Many times I have seen pictures of apiaries with straight rows of hives. Of course it looks ideal. I used to have bees in two long straight rows with a car-track between them to carry the supplies out and the honey in; but I have now given up the idea, and have what I call the Cyclone yards. If you look at the hives from an elevated position they look as if a cyclone had dropped them in every way. The entrances face all the points of the compass.

I now have only about two per cent of queenless colonies in the spring, whereas before I had as many as twelve per cent. I run my apiary mostly for extracted honey; and by working the queens for all they can do, I raise the brood above the queen-excluders, thereby preventing swarming, and get very strong colonies to store honey. The queens get a set of empty combs or foundation below whenever the lower story is full of

brood. By that plan the bees usually supersede their queens in August or September.

With the hives in straight rows, and the entrances all one way, a good number of



With the hives in irregular rows, only two per cent of the queens are lost.

the queens lose their way. Since I have the cyclone style of beeyards, very few are missing in the spring. In the winter I put the hives together in a close row, and cover

them with tar paper to protect them. In the spring the hives are put all around, cyclone style, again.

My way of wintering bees for many years has been by using sealed covers. It is the only natural way, the way that God or Nature taught the bees to prepare for winter. If it had been better any other way

the bees would be carrying all kinds of material into their hives to make a cushion on top of the brood-nest.

I am satisfied there is no better way than to let the bees seal everything up tight for winter. Any colony that is strong and in normal condition will come out all right.

La Feria, Tex.

NOTES FROM THE APIARY; NEW APPLIANCE FOR UNCAPPING

BY JOSEPH GRAY

After a season's use of a butcher-saw, weight 3 pounds and length 30 inches, I have no hesitation in recommending it for uncapping. It does away with the need and expense of a fire and the attending danger. It makes a clean cold cut, and is instantly ready for use. A few changes are necessary in the equipment. For instance, you need to be back from the screen 30 inches to allow for the sweep of the saw; and the rest for the comb must not be above 33 inches high. This allows you to stand well over your work. I space my combs wide and obtain combs weighing 7 to 10 pounds. A frame with a 1 1/2-inch top-bar and 3/4-inch bottom-bar is ideal. The Hoffman side-bar makes no difference.

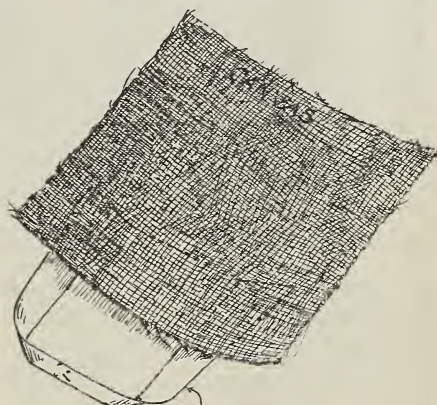
Grasping the comb by the bottom-bar, set the lug in the rest and make a clean sawcut from one end of the frame to the other. Reverse the frame so that you always cut from top-bar to bottom-bar. A butcher-knife with a 6-inch blade is a handy tool to scrape top and bottom bar, and also to scrape the capping off. Do not cut those that sink below the sweep of the saw-blade. Scrape them.

In using the saw, just saw as a butcher does. Awkward? Sure you will be so, and very slow at first. You cannot so easily unlearn the upward cut and use of the uncapping-knife and relearn in a day the use of a heavy saw. It takes a butcher years to become expert in its use. When you see the nice even combs that now weigh 6 pounds, and realize how easy and uniform they are to extract, and how regular the bees build these same combs after they have been worked over once, you will see the advantage of cutting off 3 pounds of weight in the capping and throwing out with the extractor 4 1/2 pounds weight, leaving 1 1/2 pounds weight of empty comb, all uniform and all equal.

NEW WAY TO USE THE SOLAR EXTRACTOR.

After my cappings are drained, and the honey piped away to the main tank, I grasp the four corners of a piece of burlap, which

has previously been laid in the bottom of the uncapping-tank, and carry the whole of the cappings to the solar. The arrange-

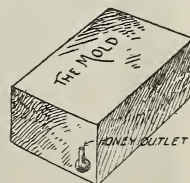


TIN SOLAR MELTER

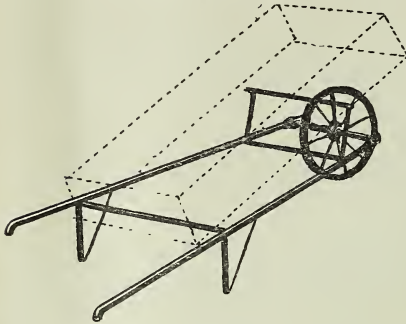
ment in the solar consists of a removable tin end and canvas. The tin end is cut from the ever useful five-gallon can as shown. The square of canvas is then over the tin, and the capping dumped on to the canvas.

The melting honey and wax flows to the edge and then over into the mold. The refuse is held by the canvas and the edge of tin. The mold is made from a lubricating five-gallon can, side cut out as shown in the illustration, and the spout turned up to allow the honey to escape after reaching a certain point. The honey is not subject to further heat, as it runs under a covered part of the solar to be drawn off later at the faucet. The mold, catch tin, and canvas should be in duplicate to allow the solar to be attended to at night, the wax to cool, and the canvas to be cleaned during the heat of the day.

In case of remelting cakes of wax, use an ordinary five-gallon can. Cut below the



line of the screw top, and press the sides and ends concave so that there will be no difficulty in removing the big cake of wax.



The thin tin of the can yields easily, and only the bottom is held. Load the solar with 24 pounds of wax to remelt, and you

will be able (in this way) to take off a cake of beautiful wax 22 pounds in weight.

SKELETON BARROW.

The Outlaw had a dig at the antiquated method of Alexander's comb-bucket. I suppose our skeleton barrow and long box holding 40 combs would please him. It is built of 2 x 3-inch material, and is 6 inches long—a skeleton or frame only. On this the box rests as shown in cut. The box has a zinc bottom and measures 5 inches long, wide enough for the frame to hang. Four wet sacks complete the best arrangement I have ever used.

Heber, Cal.

[This is the first of a series of two articles by Mr. Gray entitled Notes from the Apiary. The second will be published in an early number.—Ed.]

THE STRENUOUS BUSINESS OF AFRIKANDER BEEKEEPING

BY A. R. CLIFTON

The bees in this country are nearly all exceptions, or at any rate exhibit many exceptions, and this not alone in the hands of novices to which Mr. A. C. Miller attributes many failures.

In temper they are most variable. Many people handle them without smoke or veil;

time of the year when they were weak in numbers, and when no one was near. We found the donkeys about 100 yards from the hives some hours after they were stung. The illustration of a Zulu servant with an ax was taken on my home ground, and the field just visible in the background is where the donkeys were stung to death.

On another occasion a woman asked me to take her bees away because they had killed her mule. I found the three hives were in paraffin-cases with sacks thrown over them. These bees seemed mild-tempered, and under the sacks I found two snakes, which I killed.

Besides their temper, many other unusual traits are exhibited. They are very prone to start fertile workers, and I have seen eggs laid by them

while queen-cells and even fertile queens were in the hive. In the latter case, however, the fertile workers soon disappear. It is not uncommon to find from fifteen to twenty such eggs in a single queen-cell.

On the subject of fertile workers I heard



Just beyond, three donkeys were stung to death.

but they have been known to turn so vicious that they killed the person operating. They also occasionally kill fowls, dogs, and horses. Three weeks ago my bees killed four donkey foals which were loose in a large field fenced off from the bees at a

one of our largest local beekeepers state that he would guarantee that laying-worker eggs would produce *worker bees*, and he would demonstrate this to a number of experts or forfeit 20 pounds. My experience, however, has been directly opposed to this, though I have seen fertile - worker eggs in a colony that had a fertile queen, and which eggs were not hatched at all, in any case.

The bees in this country vary from a deep brown to four bands of yellow, those on the coast being the darkest on the whole, while in the high veldt of Orange Free State I have never seen a bee that had not at least three distinct yellow bands. Many authorities declare the bees of South Africa to be smaller than the

Italian, and also to vary in size. Be that as it may, all naturally built comb that I have measured has the same size of worker cells, while American-made queen-excluders answer our purposes admirably.

The second illustration shows the opposite side of the same apiary, and my little

girl eight months old, whom you will observe, is being brought up to use a veil when with the bees. She hopes one day to be a great beekeeper.

The apiary is enclosed with high hedges of Port Jackson willows on three sides, and



The apiary is enclosed by high hedges.

pine-trees on the fourth side. These trees are quick-growing, and, when planted thickly, make good windbreaks. We had a severe windstorm this month. Several trees were blown down, one of which smashed a hive: but with this exception none of the hives were blown over.

Cape Town, South Africa.

ORIGIN OF ALBUMEN IN HONEY

BY J. A. HEBERLE, B.S.

If a sugar syrup with a trace of sodium carbonate and enough litmus color to make the syrup blue is fed to bees, and the alimentary canal of such bees is examined, the honey-stomach shows small air-bubbles in a red-colored fluid. These bubbles of carbonic acid, and the change of color from blue to red, mean that in the short space of time it took to imbibe and swallow the syrup an acid has been added. It is known that the acid is contained in the secretions of the salivary glands.

Dr. Langer had asserted, in giving an account of his researches on honey, that with the sour secretions of the salivary glands an albuminous body was added to the honey that afterward could not be separated from it. Dr. Langer was very much interested in demonstrating not only that the honey albumen was from the bee, but

he wanted to show that it is a product of the salivary glands.

The direct way to prove this by the biological method would have been to separate a considerable number of these very small glands and inject the watery extracts, and so prepare an antiserum. As the glands are so small it would have been a great deal of work; so he tried another way, which required much less work, and seems fairly free from objections.

Dr. Langer made watery extracts from separately triturated heads, thorax, and abdomens from field bees, and injected these to obtain the antisera. From these only the antiserum from the heads gave a small precipitate with honey albumen.

The result led to the supposition that the field bees were only for bringing the sweets, and that the younger bees had to complete

the change from nectar to honey. To investigate this supposition he used a very active honey antiserum, and tested separately a number of watery extracts of heads, thorax, and abdomens of bees of different age. Later he extended the investigation to drones and queens. The results are shown in the following table:

Material used in the experiments	heads	thorax	abdomens
Workers shortly after hatching.....	0.0	0.0	0.0
Workers from the.....			
brood-nest.....	17.0 m/m	0.0	trace
brood-nest.....	25.0 "	0.0	"
super.....	25.0 "	trace	"
Field bees.....	0.0 "	0.0	"
Drones.....	0.0 "	0.0	" ?
Queens.....	0.0 "	trace	30.0 m/m
Chyme from larvæ.....	Dilution of the chyme 1:10,000		
of the workers.....	4.0 m/m precipitate		
of the drones.....	16.0 m/m precipitate		
of the queens.....	30.0 m/m precipitate		

The conclusion to be drawn from the above is that the albumen in the honey is from an organ located in the head. This organ (salivary gland) in bees just hatched seems not to have started its work, while in the drone and queen it is either wanting or exists only in a rudimentary state.

It is known that in the head of the worker there are three glands; in the head of the queen, two of them, but only one well developed; while in the head of the drone there are also two glands, but neither of them well developed.

The table further shows what practical beemen have long known from observation, that the younger bees are the nurses of the colony. The newly hatched workers show no precipitates, the organs have not yet become active; but as soon as the glands of the young bees begin to secrete, the bees instinctively turn nurses and feed the larvæ. After a while the older nurses are replaced by the younger bees, and start to

go to the field. The secretion not used or needed is stopped; the glands become inactive. If, however, by force of circumstances, the old bees are compelled to feed the larvæ the glands become active again. The heavy precipitate shown in the table by the abdomens of queens may be explained by the fact that the queen receives as nourishment chyme from the bees in attendance. It is this predigested food the queen receives so profusely that enables her to perform the tremendous task of laying 2000 and even 3000 eggs in 24 hours.

To prove that the chyme fed the young larvæ is the secretion of glands in the head of the bee, Dr. Langer shook a colony that had considerable brood on empty combs, and fed them sugar syrup to which albumen from her eggs had been added, and then dequeened it. Several queen-cells were started with much royal jelly in them. He then examined the watery extracts of heads, thorax, and abdomen with egg antiserum. The abdomens showed a heavy precipitate with the egg antiserum, but the royal jelly gave no precipitate with the egg anti-serum. This shows that the bees add nothing from the contents of the stomach to the food for the royal larvæ, or the egg albumen is in the stomach of the bee so changed or reduced that it cannot be detected by the biological method. Dr. Langer concludes that the chyme used as food for the larvæ is a pure secretion of the glands in the head of the bees.

Fischer, a well-known scientist, said in 1874 that the chyme is a secretion of the salivary glands. These glands are, in the young nurse bee, a juicy organ, while in the old worker bee it has shriveled, leaving in the head an empty space of about two millimeters.

Bavaria, Germany.

A NEW STARVATION METHOD OF QUEEN INTRODUCTION

BY A. T. RODMAN

The method of introduction which I have used this season has proved the most satisfactory of any I ever tried. So far I have not lost a queen when I followed the rules.

But in the first place I must explain that all of my hives have metal covers with an inner cover under the metal cover. This inner cover has a half-inch hole near one edge. I lay a piece of section over this hole and tack one end so I can swing the other end around from over the hole.

I use West queen-cell protectors to cage my queens in. I place a little tube in the

small end of the cage, filled with queen candy. I make the tube by bending a very thin piece of tin. The tube is about $\frac{3}{4}$ inch long. The outer end is stuffed with paper. I catch the queen late in the afternoon or evening. When I locate the queen I place the large end of the cage over her. As soon as she crawls in on the side I remove the cage, closing the end by inserting the piece of tin between the wire coils. I now put three bees in with her for escorts, and lay them away till dark.

As soon as it is about dark I remove the

tubes and let the escorts crawl out. Then I replace the tube with the end stuffed with paper on the inside so she cannot get any food.

Queens thus prepared I leave alone for thirty minutes, and by that time they are quite hungry. Then I take them to the apiary and remove the outside cover of the hive. I remove the tube from the end of the cage and insert the small end of the cage in the hole of the inner cover. I leave it so, and go to the next hive till all are in place. When all are ready I go to the first one; and if the queen has not passed down I light a little smoked rag and hold it close to the cage and blow a little smoke on her.

She will pass down at once. Then I remove the cage, close the hole, replace the outer cover, and the job is done.

I have introduced queens to colonies that had ripe cells, and the virgins hatched the next day. I looked in the second day and found the old queen laying, and a young virgin which I removed. This has happened twice this season.

Three things to be remembered are that the colony must be queenless; the queen must be hungry, and she must be introduced after dark. As I introduce the queens through a small hole the colony is not disturbed at all, and I make as little noise as possible.

Kansas City, Mo.

HOW TO DO THINGS AND HOW NOT TO DO THEM. IV

Some Pointers on Comb-Honey Production

BY R. F. HOLTERMANN

A beginner in beekeeping has to face the question of what kind of honey to produce—comb or extracted. This is a somewhat difficult point to decide, especially if bees are kept in a small way and the article produced is intended for home consumption.

In the production of comb honey less equipment is required. If disease is prev-

alent it is less liable to spread, because the supers once taken off are generally permanently separated from the bees; whereas in extracting, wet combs are put back on the hives; and if not interchanged on hives they at least touch the extractor-baskets, and the honey is distributed. For any one who wishes to stop the bees from swarming it is more difficult to do this in the production

of comb honey. On the other hand, so far as I know there is a better demand for comb honey; and, in case of the extensive and experienced beekeeper in a good locality, more money can be made out of the production of comb honey in most markets.

The question of whether to produce comb or extracted honey is one which the beekeeper will have to decide for himself.

FULL SHEETS OR STARTERS IN SECTIONS.

Contrary to the practice of many, I unhesitatingly advise the producer of comb honey to use full sheets of comb foundation as in Fig. 1, and not starters as in Fig. 2. With

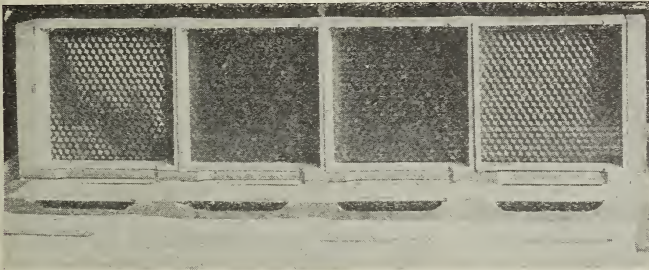


FIG. 1.—With full sheets of foundation the bees enter the supers more readily.

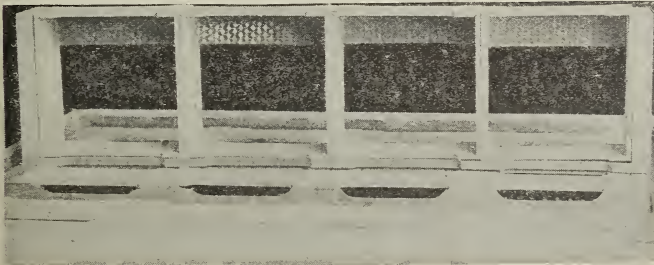


FIG. 2.—I unhesitatingly advise against the use of starters.

full sheets the bees enter the supers more readily, and in that way the bees are less liable to crowd honey into the brood-chamber and swarm.

Fig. 3 shows sections built on full sheets of foundation, and Fig. 4 shows the section honey built from small starters. When selling such honey as in Fig. 4, the best price is not obtained, and the honey will not stand the jars and bumps that that in Fig. 3 would.

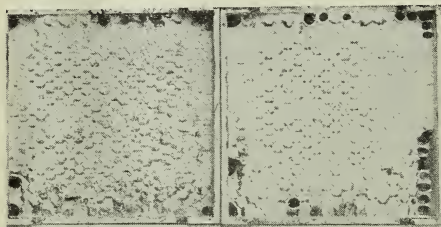


FIG. 3.—The consumer prefers the well-filled section.

I have done a good deal of comb-honey shipping; and unless the comb is well attached to the wood I never know in what condition the honey will reach its destination.

Then, too, selling honey by the pound each section weighs less. I have heard some people say that if the section is not filled

next the wood it cuts out more readily. This is very thoughtful and considerate; but the consumer rarely sees matters in that light, and will prefer the well-filled section. Some may not like it; but I think the net-weight law for comb and extracted honey is a good law. The consumer knows what he is getting, which he has a right to know. I wish we had to put up our honey in that way in Canada. It would be fair for all.

In closing I should like to add an item

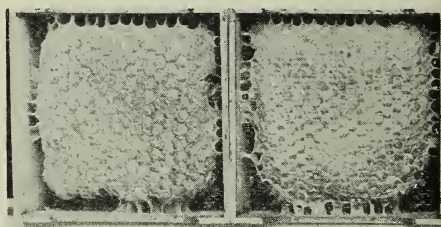


FIG. 4.—The best price cannot be obtained for such honey.

in favor of comb-honey production. Owing to the limited room which can be given in the supers, at the close of the flow there is generally more honey in the brood-chamber, and the colony is thus better provided with fall and winter stores.

Brantford, Canada.

THE LET-ALONE PLAN

BY S. M. CAMPBELL

It is time that something be done to help the beekeepers, especially in California. It has come to the point where bees will not pay expenses at the price honey is selling this season. There are many tons selling at 3½ cts. per pound—cheaper than sorghum molasses. The beemen are up against a hard proposition, and will have to cut down expenses or go out of the business.

Here is my plan to help them out in working bees efficiently. A little further on I will tell how I worked this plan successfully in Arkansas, and I know it will work in California.

Suppose a man has 600 or 700 colonies. Instead of employing two or three men, work them with but one man, and do not put in so much time. It does not pay. In the first place, have all the super room you think they will fill. We all know that this is the main thing to control swarming. Of course it will not keep them *all* from swarming; but when we get all this plan together we will knock swarming out; and swarming is what the beekeeper dreads.

Suppose further that we have outyards. The first trip in the spring will be to inspect each yard and equalize the honey. Be sure that each colony has forty pounds to commence with in the fall. I have found that this amount is somewhere near the amount it takes to winter a strong colony here in southern California.

The second round will be to equalize brood. Here is where you can overcome swarming. Don't do this too early nor wait too late. When it gets warm, and some of your colonies begin to get strong, open up the hive and take out two or three frames of brood and give them to the weaker hives. But do not give over two frames to any one colony at a time, for if you do it will make them ball their queen. Always give drawn combs in place of the brood you take away, as it is much better than foundation.

Be sure you have your hives three stories high, and four will be better. If you want to make fewer trips you can put the room on all at once. In case you do not care to

put the supers all on top you can put one or two underneath, and the bees will work down when they get full above.

I think there is much harm done by going through the bees too much. Learn to work fast with bees. Get the notion out of your head that you have to work slow. If a man has 2000 colonies of bees he needs only three men. Commence in time. It is much better to give them too much room, or a little too early, than not enough or too late. This is not guesswork, as it has been done by the writer, who located at Mineral, Ark., in the year 1900. That year I had 180 colonies of bees and 35 acres of small fruit. I made \$1250 on the bees, and with just a few trips. They were in three yards. The furthest one was fifteen miles from home. To show what can be done, I made \$11.00 a day for the days I worked with the bees from the time I started in the spring until the honey was sold.

I peddled the honey from house to house at 12½ cts. a pound. It was bulk comb honey, as that was before they had begun putting honey in buckets. I hauled it to market in new wash-tubs. I used the 5½ frame, cut the honey out, and laid it in the tubs. It was a good advertisement—nice comb honey stacked clear above the top of the tub. I did not miss many sales because of the honey being in a tub. They were nice bright tubs, and I had a clean cloth

tied over the honey to keep the dust out. When I got to town I always got a boy to drive my wagon, and I worked both sides of the street.

I especially remember our trip to Jenny Lind, Ark. This was a mining town; and as the miners had been paid the day before, they all had money, and I sold \$100 worth of honey that day.

But I do not claim to have done all this work myself, for I did not. I had a good wife to help me. That year we made \$2400 from our bees and fruit. But she died five years ago.

Bees have not made much of a crop in this section. Mr. D. R. Taylor, the man I work for, got a fair crop. His bees—550 colonies, spring count—made eleven tons of white honey and about four tons of amber from sumac. Mr. Taylor does not put the sumac honey on the market, but keeps it for spring feeding, for which it will be just as valuable as the honey he sold. He also increased his colonies to 1200. He is building his bees up by dequeening in the fall and replacing with young Italian queens from two fine breeders. They are the nicest bees to handle I ever saw. I have been raising his queens for three months now, and have opened the two breeder colonies to graft cells from nearly every day, and have never been stung by these bees, and I handle them without veil or gloves.

Nordhoff, Cal.

MICHIGAN'S FIFTIETH ANNUAL MEETING

BY F. ERIC MILLEN, *Secretary-treasurer*

On December 15 and 16 the Michigan beekeepers will hold their fiftieth annual meeting at Grand Rapids. This meeting promises to be one that will set a new record in interest and attendance, and one that will be remembered by those present as the best ever held.

One of the special features will be a banquet supper on the evening of Dec. 15. This banquet is the gift of Messrs. G. C. Lewis, Watertown, Wis., and A. G. Woodman, Grand Rapids, Mich. A banquet, at which all the members get together, seems to add a finishing touch to any gathering; and we feel sure the beekeepers will show Messrs. Lewis and Woodman their appreciation by turning out in record numbers.

The program will be brimful of good things, and many of the notables of the beekeeping world will be there. A full program will be published next month.

The headquarters of the association will

be the Eagle Hotel. This hotel has been our headquarters on many previous occasions, and is well known to the beekeepers. Rooms can be obtained from 75 cents up.

Many beekeepers do not attend meetings of this kind because they fail to realize their full value. The program alone will repay the trouble of attending, but this is only a part. The beekeeper who wants to learn more about his bees or about disposing of his crop of honey is usually able to obtain this information in personal discussions with the other beekeepers present. Send us your questions any time, and we will endeavor to answer them in a satisfactory manner at the meeting.

Every beekeeper in Michigan is invited to attend, and is expected to bring another beekeeper along and join with us in making the fiftieth annual meeting of the Michigan Beekeepers' Association "bigger'n ever."

East Lansing, Mich.



An apiary of ten colonies has been added to the farm.

SOME VANCOUVER BEES AND BEEMEN

BY BEVAN ARGYLE

Here is a view of part of the Dominion Government experimental station near Sidney, Vancouver Island, B. C. Mr. Samuel Spencer is in charge of the farm, which is situated at the northeast part of the Saanich peninsula. The usual test plots of cereals are well looked after, and the farm is now showing the good work of the superintendent in the fine ornamental shrubs and plants.

Last year an apiary of ten colonies of Italian bees was added to the farm. There

are now twelve ten-frame hives with adjustable openings to regulate the entrances. Every assistance is given to the farmer and beekeeper by the official in charge. The photographs show two enthusiastic beekeepers. Mr. Walter Luney, one of the largest building contractors in British Columbia, is on the left of the picture. He finds a pleasure and an interesting recreation in his hobby. The beekeeper on the right is Mr. William Hugh, also of Victoria, B. C.

James Bay, Victoria, B. C.

DIFFICULTY WITH FALL HONEY A MATTER OF CLIMATE

BY J. D. FOOSHE

From the fact that some have succeeded in wintering bees on goldenrod and aster while others have failed, I think we are obliged to attribute it to weather or climatic conditions. When I was in South Carolina the goldenrod and aster were the only sources of fall honey, and in some years the heaviest flow of honey during the whole year would be from these sources; but I never had any difficulty in wintering successfully on them.

Sometimes when we had a rainy season in October the honey was slow to ripen, and a few colonies would have more dead bees about the entrance, under these circum-

stances, than when the weather remained dry and warm. I have extracted quantities of aster and goldenrod honey about the last of October, and still had plenty for winter stores; but very singular conditions prevail in this locality. I have been here now four years, and goldenrod and aster bloom profusely, yet I have never known bees to gather a single bit from this source. When they get their stores from cotton, peas, sumac, and other sources they seem to be done for the year. I am located in a very dry atmosphere. Peaches, grapes, and strawberries do well here, and I have never seen any disease on any of the fruit.

Augusta, Ga.

MAKING AN AIR-TIGHT FENCE

BY NOAH BORDNER

In the view of my apiary of 84 colonies, notice the windbreak. This is made by bolting a strip 1x3 inches on each side of the fence-post with a block 3 inches square and $1\frac{1}{4}$ inches thick, between the strip and post at the top and bottom end of the strip. By doing this I can slide all the boards in these slots in the winter without using a nail, and take them out in the summer to give all the air possible in the apiary. I used posts 5 inches thick, so it requires two bolts $\frac{1}{2}$ x 10 inches to each



The windbreak fence can be seen in the background.

post to reach through strips, blocks, and post.

Holgate, Ohio.

WINTER CASES—AN INTERVIEW WITH DR. E. F. PHILLIPS

BY L. A. P. STONE

A few months ago the members of the beekeeping fraternity were invited by Dr. Phillips, in Charge of Apiculture in the United States Bureau of Entomology, to call on him at his experimental station. Mindful of this invitation, while in Washington some time ago I decided to pay him a visit, and was more than amply repaid in doing so.

I began the conversation by asking his advice on what I consider the greatest problem to northern beekeepers, the problem of wintering. "What is best and in the long run, the cheapest wintering-case for protecting bees in the climate of Ontario?"

"I think that the quadruple wintering-case, such as is used by Mr. Holtermann, is best, except that it may be well to make the case high enough to winter the bees in two-stories. My reason for the two-story idea is that, during our study of the question, I have come to the conclusion that it is far safer.

"If colonies are weak in going into winter quarters they are not an asset in any kind of case; while an ordinary strong colony, if wintered in two stories, well packed in a quadruple case, will build up

stronger and steadier in the spring with two stories than with one."

The two-story idea was not entirely new to me; but still I had never had so able an authority as Dr. Phillips recommend it before, and I feel that it must, therefore, be well worth trying. I believe Mr. O. L. Hershiser told me that he had tried it with one or two exceptionally strong colonies, and was quite astonished at the splendid way the bees came through the winter. He seemed rather cautious in recommending it universally as was Dr. Phillips.

Another interesting point discussed in our conversation was one which GLEANINGS has discussed—degree of temperature at which bees winter best in their cluster.

"The temperature should be about 57 degrees Fahrenheit; and the better this temperature can be kept by the bees, the better the wintering; because, above this point, bees tend to brood-rearing, while below it the bees are forced to exercise to keep warm. Bees have little recuperative power, as do human beings, so this extra exercise only shortens their period of life. From my observation the quadruple wintering-case is best for maintaining this temperature, and

the more packing the better. There can never be too much packing.

"In regard to wide entrances in a wintering-case," Dr. Phillips continued, "these are harmful, because they expose the bees to heavy winds."

In continuing our intercourse, the subject of sweet clover came up. I could not help telling Dr. Phillips of the hostile attitude that the majority of farmers in Ontario have for this plant. Even at the Ontario Agricultural College the majority of professors were opposed to its general use, and condemned it as a noxious weed. Were it not for Professor Pettit I am convinced that sweet clover would never receive any

mention whatsoever. I also told Dr. Phillips that in my own country, in spite of the protests of farmers who realized the value of this nitrogen plant, it was cut down along the roadsides along with thistles and mustards.

The doctor stated that the United States government had prepared a booklet on sweet clover, not overemphasizing its value to the beekeeper, but explaining its good qualities to the farmer. This booklet is to be had for the asking, and he suggested that it would be a good thing if every beekeeper would send for it and show it to the farmers in his vicinity.

Erie Beach, Ont.

CALIFORNIA SNAPSHOTS

BY CHARLES S. KINZIE

In my outyard illustrated the rows are seventeen feet apart with eight feet between the hives in the row. I call this my non-swarming apiary. The three rows are long, forty-five hives in a row, and the apiary is narrow. When the young bees and drones come out from 10 to 4 o'clock they do not become confused.

The apiary is in the sage foothills. I saw but one swarm from it this year. In my Orange Belt apiary I have my hives in a closed square, and had over thirty-five swarms from one hundred colonies. One

day I saw a swarm come out about 1 o'clock when the drones and young bees were flying. I looked at the hive they came from, and there were only queen-cell cups. Excitement had brought them out.

My honey-store is located in my home. It has shelves and a large window in front to display the honey. Last year I sold three tons in this way—tumblers, quart cans, gallon and five-gallon cans, and in the comb.

The third illustration shows my automobile and trailer which I use in apiary work. Arlington, Cal.



I call this my non-swarming apiary.

VARIOUS PLANS FOR WINTERING WHICH WERE SUCCESSFUL

BY W. D. SELLERS

As my increase is gathered in the shape of swarms from the farmers, so my opportunities each year to see how the bees have wintered are wide. About the time that the maples are in bloom I start to make my round among the farmers. Mr. A. last spring said he had saved all his bees. They were wintered in eight and ten frame hive-bodies—no absorbent material above them—just the cover glued down on the body.

Mr. B. said that he had lost one out of twenty colonies. His hives are eight-frame. He also uses no absorbent on top of his colonies. He had some air-spaced observation hives which showed up better than the ones in single-walled hives.

Mr. C. had not lost one colony out of twenty. His hives are all air-spaced observation hives wintered with sealed covers. Not seeing any bees working out of one of his hives I asked him whether it was alive, at the same time bumping my foot against it. I was again surprised to find the hive overflowing with bees.

Mr. D. had not lost a colony either. He wintered his bees in ten-frame hives with a super cover glued down on top of the hive-body with telescope cover.

The most of Mr. E.'s bees are in air-spaced hives, and some in ten-frame. He wintered his bees with the supers on, with partly filled boxes and comb. He lost one colony out of thirty-five.

Mr. F. has some 30 colonies, and had not lost one. He requeened with all young queens last fall, and wintered them with a wood-bound wire queen-excluder on top of the body, with a super of planer-shavings on top of this. We wintered with the $\frac{7}{8}$ -inch bottom-board turned up, and had the front of the board loose. He showed me some of his colonies by looking in under the frames. Some looked extra strong, some weak. He feeds artificial pollen early, and, later, sugar syrup.

The majority of beekeepers visited do not use absorbents at all on top of their hives, and I find that most of their colonies are storing during fruit bloom. Some of them never look into

the brood-chamber from one year's end to the other. Their bees swarm every year, so they have fine large young queens with



Last year I sold three tons of honey in my store at home.—See preceding page.

plenty of honey; and, not being disturbed, they raise large colonies of bees early in the season.

I visited another beekeeper, Mr. G. As he was not well, he was selling out his bees.



A trailer solves the problem for outyard work.

He had one colony left, and this one I looked over. It was wintered in a single-walled double-story eight-frame hive with 16 frames—8 below, 8 above. The colony was in better condition than any colony I found this year. This is the nearest thing to the old-style box hive which stood about 18 inches in height. These old-style box hives, single-walled, come out in the best of condition every year here. Colonies in ten-frame hives with a body of extracting combs on the top, put on early enough so the bees would have saved this colony.

can glue them to suit themselves, and with young queens with plenty of stores, will store fruit-bloom honey in this locality if they are set in the sun well protected from the north and northwest winds early in the spring.

I did not lose a colony during the winter, but lost an exceedingly strong one early in the spring from dysentery caused by too strong a mixture of brown sugar with the white. A continued warm spell for a week on the top, put on early enough so the bees would have saved this colony.

THE LEAN YEAR IN NEW SOUTH WALES

Sugar for Feeding an Impossibility

BY A. P. HABERECHE

Our past season has been one of the worst in the states; nevertheless it was just as I expected after last year's crop. In all my experience in Victoria and New South Wales, a bad season always follows a good one. What I call the "off season" comes about every seven years.

I extracted only 1740 lbs. of honey, which I really left in the supers from the season before last. I sold it all at 4 pence a pound months before I extracted it, and now I could get 8 pence for it readily. There is no honey to be bought here.

There are hundreds of colonies dying of starvation—no honey and no sugar to feed them. The most sugar a housewife can buy at a time is two pounds, and price is 3½ pence. Therefore the poor bees that have been unable to secure enough stores for their winter use are doomed to die of star-

vation. I expect the loss of bees in this district to be about a half next season.

My own bees, about 56 colonies, have plenty of stores to see them well into spring; but they are all unusually small, covering about three full-depth L. frames, and some perhaps only two frames. But I do not expect to lose more than about one-fifth of them. There is plenty of nectar for them to work on. The yellowbox is out in bloom, and the capeweed will be out at the end of this month, which gives abundance of pollen. On calm sunny days my bees will work just as they would in spring time for about four hours toward noon day.

I noticed no disease of any kind last season—no robbing, but wax or bee moth by the million. Although I never lost a single colony, I have lost many stored empty frames of comb.

Henty, N. S. W., Australia.

A DOUBLE-ACTING QUEEN AND DRONE-TRAP

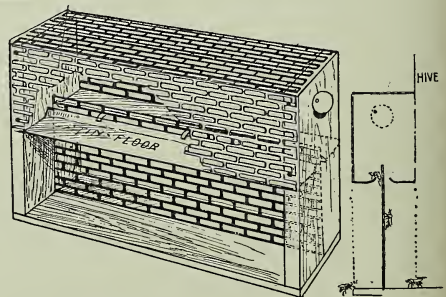
BY B. R. CURTISS

In order to construct a trap that will catch the drones and queens from both the hive and the outside at the same time, place the excluder in the center of the trap and have a passageway on both sides of the excluder leading up into the trap.

The excluder could be made in the new wire pattern with an enlargement on top of the upright bars on which to fasten the bottom of the trap.

In order to keep the drones from crawling out through the passageways it would be necessary to have the excluder extend up into the trap a short distance; then when the drones come to the opening, instead of going down they would crawl up over the excluder.

The trap would have this advantage: It



Catching them coming and going.

could be placed before the hive at any time of day, and catch the drones that come in as well as those that go out.

Wallowa, Ore.

WINTERING WITH THE FOUR-COLONY CASE

BY A. J. KNOX

For a number of years I have wintered almost all my bees (in three apiaries) in the four-colony wintering-case. I do not know who was the first user of this case in Canada; but I had my interest awakened by a study of the case, illustrated and described by Ira C. Bartlett, of Michigan, and published some years ago in *GLEANINGS*.

My first dozen cases were made out of inch stuff. The hives were raised three inches from the floor, with packing underneath. They had six inches of packing space all around the sides, and ten inches over the top.

A winter's experience with these, where the snow completely covered them for several months, proved disastrous. In the fall I had leaned the covers over the entrances to protect them from the wind and snow. This, combined with the high temperature inside the case, under the snow, caused the bees to start brood-rearing too early, with the result that they came out (probably in search of water) into the cavity under the leaning cover, and, being chilled, never got back. When the snow melted away from the cases, bees could be shoveled up with a scoop.

After some correspondence with J. L. Byer I decided to make my future cases with only three inches of packing on the fronts, the rest remaining the same depth to set the hives directly on to the floor, close together, and with no packing underneath. Further, I now place no boards over the entrances, preferring to have the snow drift solidly around the cases and up over the entrances, keeping the wind out and the bees in.

Since that change, wintering has lost its terrors, for, with plenty of bees and feed, I have good results. At the Newcastle yard last winter, I lost only three out of seventy-five colonies.

I now have seventy-five of these cases in use, and most of them are made of ordinary clapboard siding rabbeted on the lower or thick edge. This makes a smooth inner wall at a minimum of lightness and cheapness. The cover is of half-inch pine lumber, made to telescope two inches, and covered with paroid roofing. The floor is of half-inch pine, nailed to four sills, one by four inches by the width of the case. The walls of the cases go together with hooks. The posts, three to a side, and one by two inches in diameter, rest on the floor, the walls running down half an inch lower, covering the floor, and thus shedding water.

The entrances are cut three-eighths by six inches, as wide apart as the bottom-boards of the hives will allow when shoved close together; and I find it well to have the entrance about an inch above the hive floor, to allow for lack of uniformity in depths of hive-bottom boards.

When set up, the case stands on two cedar scantlings three by five inches, which leaves the entrances about eight inches from the ground.

The cases are painted with red creosote shingle-stain at 75 cents per gallon. This seems to be answering the purpose as well as lead and oil paint, and is decidedly cheaper, and easier to put on.

The packing material used is planer-shavings. It is clean and easily handled, and mice don't work in it to any extent. Cut straw is bad on account of the mice, and leaves can never be obtained in sufficient quantities. Six two-bushel baskets of shavings are required to pack one case containing four ten-frame Langstroth hives.

In the yard the cases are placed in rows about eighteen feet apart, entrances facing east and west. The corresponding squad of hives is placed just four feet south, thus allowing working room between.

With this arrangement, and the packing all in the cases, it is a pleasant and simple job to pack up a yard, taking from thirty to forty minutes per case, with two men on the job.

To pack, start at the end of a row with an empty case. Dismount the case, lift the four hives of bees to one side, drag the floor over to the place recently occupied by the bees. Place the hives back on the floor in the same relative position as before; hook up the sides of case and put in the bridges. Then go to the next case in the row, scoop out the packing with two-bushel baskets, and dump into the case just prepared for it. You now have the next case empty, and ready to operate on as before. In this way you have no lugging around of cases, and no hauling of packing every year. I see nothing to prevent the packing from lasting twenty years, with the possible addition of a few extra basketfuls now and then. I use the same packing continually, for smoker fuel. Nothing else is equal to it, and certainly nothing so handy.

This plan has been worked out so that there is a minimum of labor and expense. By this arrangement the cases act as a screen or windbreak while working with the bees during the summer months.

In an exposed location it is necessary to put a screw-eye in the cover and case, on two sides at least, and tie on the covers. Hooks will not answer, as they jar out with the wind. Unless the wind goes over forty miles per hour, I find the covers need no tying down; but having suffered from high winds on two occasions, tying down is now the final touch in my winter preparations.

When the snow comes I prefer to see it drift around the cases; and if it does not, and there is any handy, I shovel it around

the case. Snow is the best bottom packing to be had; and the best wintering seems to take place when the cases are covered with snow up to within a couple of inches of the top. This gives complete protection from the wind, and allows of upward ventilation through the packing. With the case completely covered with snow, especially during the latter part of winter, there is danger of too high a temperature in the hives for the best results.

Orono, Ont., Can.

WEATHER CONDITIONS IN WEST VIRGINIA

BY W. C. MOLLETT

The season which is drawing to a close has been one of the most peculiar for a great many years. It was dry here in February, and continued very dry till May. During fruit bloom the weather was warm and fine, and the bees built up very rapidly; but in May the rains began, and kept up with such persistency that the bees were upon the brink of starvation in the first half of June. Then just as the basswoods were coming into bloom the weather improved, and the flow from this source was remarkable for about two weeks, when the rains set in again worse than before.

The bees had made a fine surplus from basswood while the weather was dry and warm; but the rains interfered with the honey-gathering from the last of the basswood, and completely ruined the sourwood flow, as it was so wet and cloudy that the bees could not fly for a long time. From July the rains continued till September 1, and the bees were again in danger of starvation, and again the weather improved just as the fall flowers were coming into bloom.

For about ten days the bees carried in nectar as fast, almost, as I ever saw them from basswood or any other source; but again the cold wet weather set in, and there was no honey-gathering for several days until the fall flow was almost over. At the winding-up of the nectar-gathering the weather was fair and the bees were enabled to work quite strongly upon the last of the aster blooms.

I do not think they will have quite enough to carry them through the winter; but I have seen them in worse condition at this time of the year. It is usually safer to feed some here rather than to take chances, as the consumption of stores during mild winters is something surprising. I am sure

that, for outdoor wintering, which is the only way here, it will take about fifty pounds to winter an average colony. Although the weather conditions as a whole were very discouraging here, the bees secured a surplus of at least thirty pounds per colony, which is not as bad as it might have been.

I notice that the same conditions prevailed in most of the white-clover regions, so that possibly the crop may not reach any thing near that of average years. In localities that sometimes have a heavy rainfall the bee business is liable to be affected by the wet and cool weather almost any season and for this reason the beekeepers are apt to become discouraged, and quit the business. However, if one season is bad the next is likely to be better, as the weather usually keeps a pretty close balance. We are sure to have a bad season now and then, but in the long run we are very liable to come out all right. There is no cause for discouragement.

Stonecoal, W. Va.

A St. Louis Summer

This has been a peculiar season, I should say, though my experience goes back only three years. It has been supers one week and feeders the next. The white clover began to bloom about May 24, and is still in bloom. Very little honey has been secured from it, both on account of the lack of nectar and the bad weather.

Yesterday I saw bees working on white clover and smartweed in the same field. The past week has been the best one of the season, and I look for fine fall weather and a good flow from now till frost; and if the asters yield as they did last year I shall have enough to winter the bees and then some. My bees wintered in good order on the aster honey, though I had a large proportion of colonies queenless in the spring. That set them back; but they are nearly all in fine condition now. I have eleven colonies at present.

Webster Groves, Mo., Sept. 7. F. A. COLDWELL.

Heads of Grain from Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

These city people are mighty particular about some things. Last summer when the bees were working on milkweed a man on Main Street put door mats down in front of the hives so they could wipe their feet.

A Telegraph Operator's Bees

We have had but very little sunshine this season, and the crop was almost a complete failure here. The early flow was of a fine flavor, but the later honey was almost like water and of a mint flavor. Although I had 8 colonies to start with this season I got only about 50 pounds of honey from them. It was of a dark color from leaving it in the hive so long because it was not finished. I sold every section for 20 cts. each, and could have sold many more if I had had it. I did not get out and try to sell any for I did not have it. They all came to me after it. I often think if the beekeepers would only ask a little more for their honey they would sell almost as much.

I am a telegraph operator for the Pennsylvania Company. I have a second "trick" from 3 P.M. until 11 P.M., and have always had a desire for bees, as it makes a good side line. It seems as if I lose almost all of my bees every winter from cold weather. I had a little experience with American foul brood three years ago. I burned hive, bees, and all: also buried the ashes pretty deep, and have had no signs of it since.

I have read every article I have seen on how to prevent swarming. I have not tried any of the plans, for I believe natural swarming is the best way to make increase, and I do not believe there is anything that will prevent the bees from swarming,

or at least trying it. I had a swarm come out Sept. 7, this year, but they went back and saved me the trouble of putting them back. That is the fourth swarm since July 1. Three of them came from young swarms hived the last of June this year. I say it is the nature of bees to swarm, and their only way of increase, and there is no way to prevent it totally, although plenty of room and a little shade will prevent it to a certain extent.

Bradford, O., Sept. 7. CURTIS C. GROOMS.

175 Swarms from 70 Colonies, Spring Count

After keeping bees over 65 years I find I know but little about them. I always thought that if I had ten empty hives to 100 colonies I had plenty; but it was different this season.

On the first of June I had 70 hives with few bees in each. I had them all plugged up to one bee-entrance, and hardly a bee stirring. About July 1 I had a swarm off, and I began to examine them, and I found them loaded with brood.

About July 15 they began to come off, and I had 40 swarms in four days, and I never saw them get honey faster. They kept it up until September. I have 174 colonies now, and I presume I have lost 12 or 15, which got away to the woods. Eleven had been found within two miles.

I secured about 5500 lbs.—not a big yield if there had been a good lot of bees and no swarming. It all sold as fast as taken from the hives. I never saw nicer honey—no travel-stain nor water-colored sections.

I had in all something over 175 swarms. I doubled them up all I could—three swarms in some of the hives. The colony that swarmed first I moved to a new place, and hived the swarm on the old stand. The parent colony made me over 100 lbs. of comb honey, and then swarmed again about the middle of August.

West Rupert, Vt., Sept. 6. C. M. LINCOLN.

The Tenement Hive for Summer as Well as for Winter

I have used the four-hive case exclusively since 1885. I soon saw the folly of unpacking the bees for the summer. If the frames are as movable as they should be they may be quickly taken out just as well from the hives in the case. If large loose sawdust cushions remain on all summer the conditions are ideal; for the hives are cool during the hottest part of the day and warm during cool nights. In actual practice I seldom see bees doing very much fanning.

The case should be 30 inches deep so as to hold two supers at least. The roof should be half pitch, and the large gable should be open in summer. The roof should project over the sides at least $\frac{7}{8}$ inch. For convenience I have the upper half of the case hinged. I use no packing under the hive.

Little Britain, Ontario. R. F. WHITESIDE.

The Cause of Late Swarming

In regard to late swarming, my bees have not developed this abnormal condition for several years; but I have had many swarms in August and September—one as late as September 28.

With my bees, this unnatural swarming mania developed just after a short heavy honey-flow which suddenly stopped. Foundation was drawn out in supers in anticipation of a harvest which never came. Every swarm came out with a most stubborn determination to abscond. Reasoning from these two

facts, I decided that it was disappointment and disgust over the failure of a promising honey harvest that caused the late swarming. The migratory instinct is strong in bees under normal conditions; and when for any reason they become discouraged and dissatisfied with their environment, is it unnatural or natural that they should "Seek fields anew and pastures green" even at unseasonable times?

I find no bad results following late swarming if care is taken to see that no colonies are left queenless or too weak to stand the winter.

Aurora, Mo., Oct. 6. FRANK M. McMURRAY.

Raising the Price of Honey

We have been producing honey for only two years, but have had fair success in establishing a local market. I believe there are a great many beekeepers shipping their honey to distant markets and not supplying their own town. Shipping honey to distant cities is not only very expensive for high freight and express charges, but the loss by leakage of comb honey is sometimes great.

We have been selling our honey mostly to consumers. Our competitors sell their honey for 15 cents per lb. We sell ours for 20 cents just as easily. One lady told me the reason she preferred our honey was because she knew it had not been exposed to flies. I assured her that our honey was produced and handled under strictly sanitary conditions. This alone will go a long way in selling honey to women, as they realize the importance of sanitation.

There has been a great deal said in the bee-journals about maintaining the price of honey. But we decided to raise the price five cents a pound at the very beginning.

Oak Grove, Ky.

BRYAN STROUBE.

Why Requeening Does Not Always Regenerate

In my experience of requeening habitually poor colonies I have frequently found that the new queen does little or no better, and I have had colonies that, while they were given a new queen every year, remained useless to the end. I have not tested this myself, but I think I have now found the reason.

A colony that is always in a poor condition is so because the bees commencing from the larval stage have not been fed properly, and they in turn do not feed the new queen's larvae in a proper way; consequently, when the new bees hatch they lack vigor, and so this goes on all the time. The remedy for this would probably be intensive feeding for fully three months after requeening, which might force the old bees to establish a vigorous progeny; but I am doubtful, as their way of rearing their young may be constitutionally bad.

FRED B. HOOPER.

Liguanea, Jamaica, B. W. I.

A Queen Whose Eggs Fail to Hatch

I have in my possession a supersedure queen that commenced to lay about July 10. Four weeks later I noticed that this colony was slowly dwindling away, and on examination found five frames containing eggs but no larvae. I transferred the queen to a queenless nucleus and gave the colony a good queen. Both were accepted without challenge. I have kept the queen ever since for observation, but to date not an egg has hatched.

I have had about everything in the line of freak queens, but this is a new one. Do you know of a similar case?

Berca, O., Oct. 4.

W. H. DANALDS.

[It sometimes happens that a queen that has been laying fairly well, and whose eggs have hatched,

will later fail to hatch; but when that takes place such a queen is of no further use. It is more common, however, to find a young queen that lays regularly whose eggs will not hatch and never did hatch. Of course, such queens are worthless and should be destroyed; but it is rather uncommon to find a queen whose eggs have hatched regularly and then later on fail to do so.—ED.]

Uniform Success with Winter Cases

For four years I have used tenement cases for two, three, and six hives, and have had uniform results. In the winter of 1913 I wintered one yard of thirty colonies with a very small loss. In 1915 I wintered fifty-six colonies with a loss of four. I could not see any difference in the different sizes of cases. My cases are built so the entrances are all in the same side of the case and facing south.

Kirkwood, N. Y.

J. STUART SCOFIELD.

How to Handle Laying Workers

When a colony contains laying workers, move the hive about thirty or forty feet and put in place of it another hive containing a frame or two of brood and a queen, together with empty frames. Then shake all bees from frames in the old hive on to the ground, removing the hive and frames. The bees shaken will at once go back to the old stand and the new queen. The laying workers are either too heavy to return or are treated as intruders and destroyed. I tried this with one colony, and it worked perfectly. These instructions were given me by one of our state inspectors, Mr. Charles Stewart.

Palmira, N. Y.

G. H. PARKER.

A Satisfactory Cellar

The cellar I made for my 74 colonies is 6 x 10½ x 6 ft. There are 18 inches of sawdust between the inside casing and outside. Ventilation is through the center of the room at the top.

As we have sand here it did not need a wooden floor, only the earth. Two doors, one outside and one inside, keep the frost out and allow me to look at the cellar at any time. The temperature keeps about 45 degrees, never below 42, and not often over 50.

There was some dampness which can be prevented. The bees remain quiet the entire season in the cellar.

Last year they were put in December 9. A two-inch rim was placed between the hive-body and the bottom-board. Both the covers and the bottoms were left on, and the two entrances left open—one at the bottom-board and the other between the rim and the body.

Grand Rapids, Wis.

CHARLES PRITCHARD.

Never Too Late to Treat Foul Brood

Is it too late to do anything for European foul brood this season?

Ladd, Ill., Sept. 29.

JOHN WOLF.

[It is by no means too late to do something for European foul brood this season. In the first place, we would recommend you to Italianize all your bees with the very best Italian stock that you can secure. Generally, you would get better results with leather-colored; but some strains of bright or golden Italians are just as good for resisting European foul brood. This is the initial step to cure European foul brood. You may not have to do anything more next season than to dequeen for about ten days, and then let her loose again. See Dr. Miller's directions given in a recent issue of GLEANINGS.—ED.]

A. I. Root

OUR HOMES

Editor

To this end was I born, and for this cause came into the world, that I should bear witness unto the truth.—JOHN 18:37.

No weapon that is formed against thee shall prosper; and every tongue that shall rise against thee in judgment thou shalt condemn.—ISAIAH 54:17.

Fear thou not, for I am with thee; be not dismayed, for I am thy God; I will strengthen thee; yea, I will help thee; yea, I will uphold thee with the right hand of my righteousness.—ISAIAH 41:10.

When I was about ten years old, on coming into the schoolroom one morning, I, with the other pupils, was wondering what a certain sentence on the blackboard meant, written in a beautiful hand as follows:

"Magna est veritas, et praevalet."

When the teacher came he explained to our curious and inquiring minds that a friend of his, a college graduate, had just paid him a visit; and while in the schoolroom he picked up a piece of chalk and wrote that motto. He said it was Latin, and when translated into our language it meant "Great is truth, and will prevail." During that whole day many curious eyes were cast now and then on that beautiful specimen of penmanship. I always had a love for language and words; and even at that early age I decided that the word *magna* meant something like our word *mighty*—truth is mighty; and the word *veritas* I figured out meant something like our word *verify*; and the last word, *praevallet*, it was easy to guess, meant to prevail or become established. And all along these 65 years I have wondered again and again if the truth will finally prevail over falsehood and tangled-up intrigue.

In our temperance work, the liquor party will get hold of a little bit of truth. They exaggerate and twist it, so that sometimes even good and honest men get rattled. A few days ago while at our dentist's he asked why the Y. M. C. A. of Medina Co. gave up its regular meetings during hot weather. He asked me if I ever heard of *Satan* taking a "vacation" because the weather was hot or business was dull. And I am not sure but that at such a time, when people are off on an excursion, or are taking a vacation somewhere, it is the time when *Satan* gets in his best licks. *He*, at least, is untiring.

On p. 333, Minnie J. Ellet tells us that a Summit Co. liquor-license commissioner said Kansas was finding prohibition a failure, and that Kansas would have to go back to license, etc. Well, this story has gone out far and wide; and although the people of Kansas, and especially the governor of it,

has taken every precaution to have it contradicted, it is almost impossible to keep up with the lie—a lie made out of whole cloth; for, so far as I can learn, there was no foundation at all for such a newspaper falsehood. It seems to verify the old saying that "a lie will walk around the earth while Truth is pulling on his boots." With all the methods of communication, with our magazines, weekly and daily papers, telegraphy, including wireless, is it going to be possible to contradict the falsehoods and keep *truth* before the people? Years ago it was my privilege to listen to a talk from Anthony Comstock; and we frequently have newspaper notices that he is still alive and protecting our people, especially our boys and girls, from something that may be even *worse* than strong drink—from something that usually goes hand in hand *with* strong drink, and which would hardly keep alive if it were not for the help that it gets from saloon-keepers. All along during Comstock's faithful service, every little while a report is started, saying that the Postoffice Department has dropped him or given him up; and lately it has come out in the papers once more.

The Sunday School Times of a recent date, when commenting on the matter, had the following:

"THE FALL OF COMSTOCK."

That was the headline of a recent newspaper editorial.

For Anthony Comstock has had a fall.

But he has fallen on top of his enemies.

And Mr. Comstock is a very heavy man.

His feet are not small. And when he falls, he has a way of landing squarely on both feet, with his enemies underneath.

It hurts when Anthony Comstock falls.

But it doesn't hurt him.

You'll be interested in reading the Open Letter story of his "fall."

Then you'll want to know how it is that for more than forty years Comstock has landed on his feet.

He has had more savage enemies than almost any other man in our generation.

They've tried to bribe him, to discredit him, to kill him; and they couldn't.

His life-story is one of the most thrilling tales of adventure ever written. And it shows the miracle-keeping power of our God.

The enclosed is a clipping from an editorial in a recent issue of the daily in this city. Will you please tell me the story of the "Fall of Comstock"? I cannot believe it can warrant such a title.—A CANADIAN READER.

The Canadian newspaper article was similar to others that appeared in various parts of the United States last month, to the effect that Anthony Comstock, Secretary of the New York Society for the Suppression of Vice, was to be removed from the position of Postoffice Inspector that he had held for more than forty years. The reasons hinted at for his al-

leged removal were, of course, as has been customary in most newspaper comments on Mr. Comstock during the past generation, sharply to his discredit. As the Canadian paper editorially said: "He has been more laughed at, more anathematized, than almost any man of our times. . . Now that he has received his first real defeat it is well to pause and realize that his faults are those which invariably go with high qualities and frequently make high qualities effective. The achievements of this ruthless vice-hunter far outweigh his mistakes, and his retirement from any of the activities would be something of a public calamity, not a cause for exultation."

But, fortunately for the public, this "first real defeat" of Anthony Comstock is like many another of the "real defeats" that have been heralded as bowling him over during the past forty years; it turns out to have been the defeat of his enemies, not the defeat of Anthony.

As some of the newspapers have already announced, Mr. Comstock's official appointment as Post-office Inspector has not been revoked, and it is not likely to be. In a recent personal letter to the editor of *The Sunday School Times* he wrote:

I had a very delightful interview with the Postmaster-General and Chief Inspector at Washington yesterday, and I am still a Post-office Inspector, and expect to remain so for some time to come. I do not think there has been any change contemplated by the Chief Inspector.

Anthony Comstock hates vice, and lovers of vice hate Anthony Comstock. But he is loved by many others for the enemies he has made, and that he will continue to make as long as his invaluable life is spared to do to the death the ghastly and soul-destroying traffic against which, in the strength of God, he has for almost half a century flung himself and all his God-given resources.

The present newspaper flurry reminds one of the attempt made a few years ago to end Mr. Comstock's official activities when he had stopped a certain art organization in New York city from its promiscuous circulation of objectionable matter. In December of that year an effort was made to have him removed as Postoffice Inspector. The following account of the incident is given in his authorized biography:*

When he learned of this attempt, Mr. Comstock went on to Washington in person to see Mr. Cortelyou, then Postmaster-General. Mr. Cortelyou was sitting at his official desk when Comstock's name was brought in by an attendant. Instead of sending for his caller, the Postmaster-General arose from his desk, walked out to the reception-room, and took Mr. Comstock heartily by the hand. Walking back together to the private office they talked the matter over, and Mr. Cortelyou said:

"Mr. Comstock, I have never had a thought of not reappointing you. But you're a veteran, and I have a right to appoint you under the Civil Service rule. I am going so to appoint you, and now I am going to give you a salary whether you want one or not." Mr. Comstock had, it will be recalled, served since March 5, 1873, as an officer of the Federal Government without pay, this having been done at his own request. It is a question whether any other man living has any such record. At Mr. Cortelyou's insistence he now consented to receive a salary from the government, the first that he had ever taken. And the newspapers published the statement that the Postmaster-General had refused to reappoint Mr. Comstock!

The vindicated lover of purity has said quaintly, in comment on this experience:

"You fellows who are sowing seed don't know what the rays of the sun are on the back of the weeder."

Because Anthony Comstock is alive and at work the young people in high schools and boarding-schools are prevented from receiving through the mails reading matter and pictures of a sort so vile that many readers of *The Sunday School Times* have never imagined such things could be in existence.

Because Comstock is alive and at work, decent persons on the street and in stationery stores are saved from the insult of having thrust before them unspeakably vile pictures and books that a generation ago were a common matter of sale in such places. And young men and others who are easily appealed to and dragged down by the infamy of this sort of vice traffic are saved from that attack upon their lives and souls.

His relentless and long-continued warfare against this traffic has made Mr. Comstock a mark for assassinating attempts upon reputation, character, and his physical life during all these years. But he has quietly rested upon the word of God: "No weapon that is formed against thee shall prosper; and every tongue that shall rise against thee in judgment thou shalt condemn. This is the heritage of the servants of Jehovah."

As showing his continued and successful activity, even at seventy-one years of age: Since the first of this year the New York Society has made 67 arrests, and has seized 1583 obscene books, 13,512 obscene pictures, 123 negatives for making pictures, 445 advertising circulars, 7233 articles of illicit traffic, 942 lottery schemes, 34,650 lottery tickets, and 452 lottery prizes. Some years ago his total work represented the destruction of nearly 50 tons of vile books, over 25,000 pounds of stereotype plates, 2,050,000 obscene pictures, and over 12,000 negatives.

A beautiful expression of the simple-hearted faith in God that has been Anthony Comstock's safekeeping and victory is found in the following statement of his personal experience that he once made to the Editor:

"You are in the surging billows, and all you have got to hold on to is a little thread anchoring you to the pier, and it's very frail, and you're afraid it will break. And then it does break—it is self, and you're about to go down. Just then you hear, 'Fear thou not, for I am with thee; be not dismayed, for I am thy God;' and you see a strong cable thrown out, and you lay hold on it, and feel safe again. And when your hands grow numb, and you fear that you'll have to let go, you find that some one has put it under your arms and around your body, and you cannot sink."

That is Mr. Comstock's idea of God's keeping as he has tested it.

Just a word in closing in regard to our last text. During the past winter Mrs. Root's only brother was taken away. I wrote to the sister-in-law, offering her some words of consolation, and asked her if she was clinging closer than ever to God's precious promises. She wrote back and quoted the words, "Fear not, for I am with thee; be not dismayed, for I am thy God," etc. She said she found the words in a newspaper at the very time when she needed them most; but she said she had searched her Bible in vain to find them, and asked me if I could tell her where to look. I found them in Isaiah 41, and the circumstances brought out this wonderful promise in a new and hitherto undiscovered beauty and grandeur. No wonder Anthony Comstock has "prevailed" and kept up, for he is resting his life and faith on such promises.

* Anthony Comstock, *Fighter: Some Impressions of a Lifetime of Adventure in Conflict with the Powers of Evil.* By Charles Gallaudet Trumbull. To be had from the Sunday School Times Company, 1031 Walnut Street, Philadelphia, at \$1.25 net.

Since writing the above we have received the sad news that our vehement and energetic friend has been called to his reward. We clip the following from the *Medina Sentinel*:

Anthony Comstock, the store porter who became a national figure by fighting obscene books and pictures, is dead at 71 years, after a crusade lasting 43 years. In that time he imprisoned nearly 3000 people for impairing morals, and collected nearly a quarter of a million dollars in fines.

Still later.—Today is Oct. 5, and I hold in my hand the *Menace* for Oct. 2. This paper makes mention of the death of Anthony Comstock, but, unlike the other periodicals I have come across, they severely criticise our departed friend. In fact, I should not want to put in print the things said about him—at least not in *GLEANINGS*. As an illustration of their *mistaken and unjust* statements, let me quote just one paragraph:

"All his life, after he fastened himself to the federal payroll, he was a professional blackmailer."

How does the above sound when we are told in the article from the *Sunday School Times* that Mr. Comstock absolutely refused *any* salary as an officer for the federal government since 1873 until finally the Postmaster-General declared he was going to give him a salary from then on, whether he wanted one or not? Now, if the *Menace* is as far from the truth in other statements—statements made without knowing the real facts in the case, how much allowance should we make for what we find on its pages? It seems that Anthony Comstock decided that the *Menace* was infringing on the Comstock law, not only once but several times. You know we are told that "the law is a terror to evil-doers."

We also give place to the following from the *Rival New-Yorker*:

Anthony Comstock, secretary of the New York Society for the Suppression of Vice, died at his home at Summit, N. J., Sept. 21, aged 71. He was a native of Connecticut, a veteran of the Civil War, and was first aroused to his life-long fight against vice by the free dissemination of indecent literature among the young. In March, 1873, the so-called "Comstock law" was enacted by Congress, and Mr. Comstock became an inspector in the postal service. In that place he put a stop to the dissemination of obscene matter through the mails, and also to the circulation of lottery tickets, fraudulent advertisements, etc. The present efficient system of investigating and checking fraudulent transactions through the mails must be credited chiefly to him.

We close with the following, clipped from the *Sunday School Times* for Oct. 2:

Weapons, threats, physical attacks of fiendish ingenuity and effectiveness, could not intimidate him. He quietly accepted God's promise as a personal word to himself. "No weapon that is formed against thee shall prosper," and went about his business letting God prove this to the confusion of

his enemies. Neither could men appeal to covetousness in him, as they sought to do. When he was running the famous Louisiana Lottery out of New York, where it had done the flourishing business of taking in over \$5000 a day, he was offered \$25,000 a year if he would simply cease to interfere with the company's work. When he declined, they tried still more enticing bribes, the only result being that, as Joseph Cook later wrote, mortal wounds were inflicted "upon the Louisiana Lottery, and now that Devil Fish of the Gulf is in the agonies of dissolution."

We are today living in a land that is comparatively free from open traffic in things that a generation ago were making their infamous appeal to the eye and mind of school children, and of young men in business, and of older people; and this is so because Anthony Comstock lived out his life in self-surrendered and successful conflict with that evil. May God raise up others who shall fight as faithfully as he did.

A PRAYING PRESIDENT.

Some good friend has sent me a clipping from the *New York Times* which reads as follows:

"When the President arrived at the Cabinet meeting," said Bishop Anderson, "his face wore a solemn look. It was evident that serious affairs of the nation were on his mind. He said to the Cabinet members: 'I don't know whether you men believe in prayer or not. I do. Let us pray and ask the help of God.'"

"And right there the President of the United States fell upon his knees, and the members of the Cabinet did the same, and the President offered a prayer to God. While the war rages in Europe, we in this country should thank God that in this crisis of the world we have a Chief Executive who is a servant of God who stands with his hand in the hand of God. Every minister in the land should, every time he offers a prayer, take Woodrow Wilson by the hand and lead him into the presence of God, and ask that he be given strength to continue to be the great apostle of peace among men."

There was a chorus of "amens" from the ministers. Later a telegram expressing the confidence of the delegates in him was sent to the President.

May God grant that the president who shall come after President Wilson may be also a God-fearing man, and one who has faith in prayer.

THE LIE AND THE LIAR—WHAT SHALL WE DO WITH THEM?

We clip the following, by Robert E. Speer, from the *Sunday School Times*:

A nation which tells or does lies starts off foredoomed to judgment. We need to see and to drive the lie and the liar out of our national life.

Perhaps our readers will recall what I have several times mentioned, that the *Sunday School Times* says "a lie is *always* wrong." In another place they say "*deception* is *always* wrong." May God hasten the time when not only individuals but nations shall find out the truth of the above and accept it.

TEMPERANCE

The most dangerous trust is the liquor trust. It is a combination of gold without God, cash without character, silver without soul, and power without principle.—REV. JAMES GORDON, D.D., Winnipeg, in *Ohio Messenger*.

THE TRUTH ABOUT THE LIQUOR BUSINESS.

Today, Oct. 22, there is such a pile of leaflets and bulletins afloat, both for and against the liquor-traffic, that it may trouble many people to separate truth from falsehood. Please bear in mind, friends, that the wets have no object in view except to gather in a little more money. They have no interest in the good of our nation and in the matter of trying to elevate poor weak infirm humanity. In our effort to set the people right, especially the people here in Ohio, I want to make three extracts from the *American Issue*; and please remember that these extracts have the indorsement of our schools, our churches, our railroad companies, our manufactories, our farming communities, and, in fact, all good and unselfish people not only here in America, but I might almost say of the whole wide world. Read this and ponder.

WHY OHIO LIQUOR MEN SAY NOTHING ABOUT THE SALOON; SALOON SO BAD IT CANNOT BE DEFENDED.

Not a word about the saloon in any of the wet literature or on any of the wet posters!

Did you know that?

Do you hear wet speakers mention the saloon or attempt to defend it?

You do not.

Why is it that the wets are silent about the very thing they are fighting to maintain?

Why do they talk about everything else, but so far as literature and speeches are concerned seem ignorant of the existence of the saloon?

Is there a reason for this silence?

There is.

The saloon is such a gigantic evil that its very name is distasteful to the people, and this holds good with many wets as well as with the dries.

The more attention is directed to the saloon, the more its ugly and unamerican character is revealed, and the more dry votes will be cast.

No class of men know this so well as the liquor men.

So there is a general understanding in the liquor camp that the word "saloon" is not to be used.

SOPHISTRIES OF OHIO LIQUOR MEN ANSWERED IN A FEW SENTENCES; THEIR STOCK CLAIMS, ASSERTIONS, AND PRETENDED ARGUMENTS ARE FLIMSY AND FALSE, AND ARE EASILY DISSIPATED BY FACTS AND COMMON SENSE.

The wet official argument against prohibition speaks of Ohio liquor manufacturers "with more than 100,000 employees."

Government figures give the total number of employees of Ohio liquor manufacturers, including wage earners and male and female clerks, as 5517.

Which is right?

Paid wet advertisements and big wet posters say that under prohibition Ohio property values "aggregating \$460,000,000 would be thrown into the scrap heap."

Government figures give the total capitalization of all the breweries, distilleries, and wineries in the state at \$64,459,624, and this includes millions of watered stock like the Hoster-Columbus Associated Breweries, which was incorporated at \$12,000,000, and paid taxes on a valuation of a little more than a million and a half.

Which is right?

"Prohibition has not settled the liquor question anywhere it has been tried," says a wet advertisement.

What about the 19 states that now have prohibition? What one of them is even considering going back into the wet column? What about Kansas, for instance, which has had prohibition for 35 years and likes it so well that last fall the wet candidate for Governor polled only 6 per cent of the total vote, while all political parties endorse the prohibition policy?

Is not prohibition the only policy that does settle the liquor question?

"Prohibition would mean the loss of \$15,000,000 in taxes to the state of Ohio and its political subdivisions," says a wet advertisement.

Not at all. Ohio plants which now manufacture beer and whisky would, as in other states, be transformed into packing-houses, ice-plants, milk-factories, and other productive institutions, employing more men and paying more taxes.

"Prohibition would increase your taxes," says a wet advertisement and the wet speakers.

Figures of the United States Census Bureau show that in prohibition states general property taxes collected average \$10.12 per capita, while in licensed states they average \$16.98 per capita.

Which will you believe—the unsupported claim of the wets or the official figures of the government?

"Prohibition takes away from you every vestige of personal rights." Quoted from a wet advertisement.

It does not. It takes away from the liquor-dealer the right by suzerainty of selling poison. The United States Supreme Court says he never had an inherent right to sell the stuff. It does not take away the right to use, but to sell. You have the right to eat rotten meat, but you do not have the right to sell it.

"Prohibition would deprive thousands of workmen of the livelihood for which they have fitted themselves," says the official argument against prohibition.

A few hundred will cover the entire number of brew-masters, rectifiers, etc., in Ohio who have "fitted themselves" for special work in the liquor-traffic. The driver of a brewery-wagon can drive any other kind of wagon; the maker of beer-kegs can do any kind of cooperage work; makers of beer-bottles can make milk or any other kind of bottles.

Remember, however, that the thousands of men in Ohio who have lost their jobs through drink are down and out for good, unless prohibition comes to their rescue. Prohibition will give these men another chance.

"The state will suffer a financial panic if prohibition is adopted," says the wet argument against prohibition.

Bosh! Who ever heard of a panic resulting from stopping a waste of money? Instead of worse than wasting the \$110,000,000 now annually spent for liquor in Ohio, spend that sum in lines of legitimate trade; and instead of a panic there will follow an era of prosperity such as Ohio has never known.

"Ohio cannot afford to lose the \$6,000,000 now paid the state, county, and municipality in liquor-license fees," say the wets.

Ohio cannot afford not to lose this revenue. This license revenue equals \$1.20 for each man, woman, and child in the state. The drink bill for a year equals \$22.00 for each man, woman, and child in the state. Ohio squanders \$22.00 per capita to get in return \$1.20 per capita. She is out of pocket on this item alone \$20.80 a year for each man, woman, and child. Add to this the cost of caring for the product of the saloon, and the actual loss is at least double the sum here quoted.

"Ohio cities and towns cannot afford to lose the saloon revenue which is now applied on their taxes," says wet literature.

The more liquor revenue Ohio cities and towns receive the greater their burden of taxation and indebtedness. Cincinnati now has a bonded indebtedness of more than \$60,000,000, and a tax rate approaching the limit, and yet she receives \$400,000 a year in saloon revenue, and faces a half-million deficit on running expenses. Her bonded indebtedness is \$165 for each man, woman, and child. Kansas has no revenue from saloons, and her bonded indebtedness is less than 10 cents for each man, woman, and child.

"Prohibition in Ohio will lose the farmers a valuable market for their grain," says a wet advertisement.

Only about 1 per cent of the grain of the country is used in making liquor. As the dry area increases, the price of all farm products advances, because more people have more money to buy everything the farmer raises.

"Bootlegging will be encouraged and speakeasies will increase if prohibition is adopted," say wet speakers and liquor advertisements.

The annual report of the Ohio Liquor Licensing Board bears out the contention of the drys that license fosters speakeasies. That report shows that fines imposed on liquor-law violators in the 45 dry counties totaled \$14,850, and in the 43 wet counties \$41,360. The wets themselves say there are as many speakeasies in Cleveland as licensed dealers, and the saloonkeepers of that city appealed to the Governor last year to protect them from the horde of illicit sellers.

ANSWERS EVERY WET ARGUMENT.

The first Sunday Chicago saloons were closed, arrests for drunkenness fell from 243 to 63, while the crime record was the lowest in the city's history. There is no better evidence than this that the United States Supreme Court was right when it declared the saloon to be a source of crime and misery. Chicago's record of a closed Sunday answers every argument by the wets in favor of the liquor traffic.

MODERATE PRINKING AND PROHIBITION.

The great argument—in fact, almost the only argument the wets try to make, after being driven into a corner all over the world, is that moderate drinking is better than downright prohibition. They are claiming at this date, Oct. 20, most vehemently, that a man can do better work, and enjoy more health, by a moderate and reasonable use of intoxicants; but the reports from our factories, railroad companies, schools, colleges, and everywhere else, are now coming like a mighty flood to prove the contrary. In fact, this great flood is daily gathering weight and volume to such an extent that any use of intoxicants, *even in small quantities*, must and will be driven not only

from the United States, but from the whole face of the civilized world. Our magazines and periodicals of every sort, unless it is those that still hold on to their liquor advertising, are coming forward in every issue showing that intoxicants in any shape for old or young are always damaging and nothing else. Here is something that I am glad to see in the *Outlook*:

ALCOHOL AND EFFICIENCY.

One of the significant and unexpected results of the new campaign for scientific efficiency in industry is the movement against alcohol. On several occasions *The Outlook* has called attention to this movement. Now comes the report of the Methodist Temperance Society, indicating how widespread is this movement.

This society has made a careful investigation of conditions in the iron and steel trades of Pennsylvania, Ohio, Illinois, and West Virginia. It finds sixty-three large concerns that have taken steps to determine the influence of the moderate use of liquor on working efficiency. Without exception these firms testify that the effect is bad. These corporations include such firms as the Youngstown Sheet and Tube Company, the Harrisburg Pipe and Pipe Bending Company, and the Illinois Steel Company. Eighty-three of the concerns questioned, in employing and advancing men, discriminate against those who use alcohol. To quote one of them, "Even the most 'moderate' use of alcohol is fatal to a man's chance of advancement." Among these eighty-three firms are the Oliver Chilled Steel Plow Works, the American Steel and Wire Company, and the Pennsylvania Steel Company. Ten great concerns have prohibited absolutely the use of alcohol on the part of employees. Among them are the Reading Iron Company, the American Sheet and Tin Plate Company, and the Lukens Iron and Steel Company.

Under the old rule-of-thumb management this situation would never have come about. The effect of alcohol on efficiency would never have been known exactly. But when the new and supposedly infallible methods of efficiency at times failed, the resulting investigation into the cause showed that it was due to individual unfitness caused by the use of alcohol. And when it was shown that even a little alcohol—as little as might be in two glasses of beer—was the cause, the result was inevitable.

In the scientific plan of efficiency it is necessary, to use a military phrase, to hit the bull's-eye every time. A bullet in the first ring won't do. In such circumstances a workman need not be anywhere near intoxicated to be inefficient. A glass or two of beer makes the difference between a bull's-eye and a shot in the first circle.

The new plan of efficiency is so profitable to both employer and employee that whatever stands in its way must go. Economic necessity is making converts to prohibition. The Methodist Temperance Society's report shows how fast men are moving in that direction.

May God bless the Methodist Temperance Society.

Since the above was in type we find the following in the Cleveland *Daily Press*. It is an attempt of one of the "home rule" to defend the wets in the matter of efficiency.

"PROHIBITIONISTS ARE FOR EFFICIENCY."

If the laboring man drank no beer or liquor, even temperately, his efficiency would be greatly increased.

Somehow these prohibitionists are great for "efficiency." They want to make machines of men, to produce as much as possible in the shortest time

possible. *without joy*, without change, without recreation.

In the first place such a course never will increase wealth, and if it did, it would be at a tremendous cost to the living manhood of the state.

They next say that there would be no drunkards and that the sobering effect on the workman would save money now lost in drink; that the money spent in drink would be spent for groceries, etc.

Well, if every man who drinks a glass of beer were a drunkard, and had nothing left to buy groceries, there might be some point in the argument; that is, if he can use more groceries than he now eats. But the number of drunkards, unfortunate as they may be, when compared with the number of temperate drinkers, is so small that the argument falls of its own weight.

GRAHAM P. HUNT,
Counsel Ohio Home Rule Association.

In the above I have taken the liberty to put in some italics. It makes me think of the kind of joy these fellows *enjoyed* when they got home singing "We won't go home till morning." And it reminds me too of the man who, under the influence of this kind of joy(?) murdered his *blind wife* as related in our back numbers, and the other one who slashed his helpless three-year-old boy seventy times—see page 735, Sept. 1. Do we want any more of such joy? And does not the above plea for moderate drinking or for the moderate use of liquor tend to help the dry side more than the wet?

THE RIGHT TO BE BORN SOUND, WITH A SOUND MIND IN A SOUND BODY.

The following is something I furnished one of our Medina papers. As it may be interesting also to the readers of GLEANINGS we give it a place here:

An Ohio man, Mr. John J. Lantz, in an address in behalf of good government, at Minneapolis on August 22, said something as follows: "We ought to concede to our babies the right to be born sober, with a sound mind in a sound body." They have the right to be born in an environment that will not deliver them to reform institutions in early manhood and womanhood, with a guarantee against cholera and smallpox. Isn't it more important to protect our babies against alcoholism? During the past 60 years that I have lived here in Medina, I have watched quite a few babies from the cradle to the grave. I have seen them while growing in their mothers' arms, and later I have watched their toddling feet. I have had a glimpse of them occasionally as they attended our Medina schools. I have seen the boys and girls grow from childhood to manhood and womanhood. One after another I would hear of their marriages. A little later the father and mother would show me their baby. Now, it would be a pleasant thing, a *glorious* thing, if all these little ones grew up and followed in the straight and narrow path. I remember a very pretty-faced, black-eyed German girl. She used to come to my store frequently, and I got well acquainted with her. One day she said to me confidentially, "Mr. Root, I am going to get married." A little later she introduced a young man, German like herself, and said, "Mr. Root, this is my husband." Time passed; and one day when I was tired of working at the bench she came in with a bundle in her arms and said smilingly, "Mr. Root, I got a baby." Of course, I talked to the baby, and saw him frequent-

ly until he could run about, and then I lost sight of my good friend Caroline. I have never seen her since. I will tell you what I did see, however. Years ago one of the boys came running to me out of breath and said, "Mr. Root, come quick. There is a young man out here declares he's going to lie across the track when the locomotive comes and it's already whistling." I found a young man I thought I had never seen. He was beastly drunk, and declared his purpose of lying across the track. He gave as a reason that he had promised his mother never to drink another drop, and that he had repeatedly broken his promise. "Now," said he, "I am going to make it sure. It's the only way."

My good friends, the above is a sample of a drunken man's logic. Finally, I asked his mother's name. How do you think I felt when I found the boy's mother was my bright friend Caroline, of former years? I tried to go with him to his home down north of Medina; but every time I left him, as soon as I was out of sight he would get back and lie across the track; and to save his life I was obliged to sit up almost until midnight, or until all the trains had passed, before I could go home.

The above is only just one little brief sample of the work of our saloons. Shall we not, for the sake of the babies, if for no other reason, put them out of existence when we come to vote November 2?

DAILY PAPERS THAT REFUSE LIQUOR ADVERTISING.

"Godliness is profitable."

It seems the W. C. T. U. has been making investigation in regard to the attitude of the daily papers of our nation toward drink. The following is a report clipped from the *Ohio Messenger*:

LIQUOR ADVERTISING.

The present attitude of the daily newspapers of the United States toward liquor advertising and prohibition is inspiring. The investigation reached every daily newspaper in the United States. Six hundred and seventy-nine replies were received to 2160 letters. Five hundred and twenty of the daily newspapers replying reported that they accept no liquor advertising. Three hundred and sixty of them announced that they advocate national prohibition in their editorial columns, while of the remainder only 200 are willing to say that they oppose. Three hundred and sixty-nine favor state prohibition, with only 193 opposing; 397 favor local prohibition, with only 176 in opposition.

Ten years ago no one could name half a dozen daily newspapers in the United States which favored national prohibition. Generally they treated it as a joke; and it was a common plaint of the temperance people, "If we had only one great newspaper!" Today, such great dailies as the *Republican*, of Springfield, Mass.; the *Tennessean* and *Banner*, of Nashville; the *Times*, of Detroit; the *Times*, of Indianapolis; the *Journal*, of Lincoln; the *Gazette-Times* of Pittsburg; the *Intelligencer*, of Wheeling, and scores of other papers that are representative of power and influence absolutely decline liquor advertising on any terms.

When the Pittsburg *Gazette-Times* announced that it would accept no more liquor advertising one issue of the paper had two entire pages filled with fine-print paragraphic expressions of approval, and it announced that it was literally overwhelmed with its laudatory mail. The Chicago *Herald* added three thousand columns of advertising within a short time after taking its stand. The Coshocton (O.) *Tribune* gives a detailed report of wonderful prosperity under its dry policy, although they were "dead enough to drag out" when they were wet. A cheering fea-

ture of the correspondence elicited by this inquiry was the practically unanimous sentiment of the papers that prohibition is coming.

Only 46 of the papers replying were located south of Mason and Dixon's line. The rest were all Northern papers; and in view of the fact that a large majority of the Southern papers are known to be dry, the showing made is all the more imposing.

The American press is no longer a guardian angel, but is a specter to the liquor interests.

FLORENCE D. RICHARD.

I wish every daily in our land, more especially the great city dailies, would take notice of the paragraph above in regard to the *Chicago Herald*; and every one who has read it knows the *Herald* came out boldly and fearlessly in no doubtful terms—a "guardian angel" no longer, but a "specter" truly to the liquor trade.

On page 871 of our last issue something is said in regard to the matter of prohibition among college students, and we made a quotation in regard to Oberlin. It seems from the following, which we clip from the *Cleveland Plain Dealer*, that the colleges of the West are not going to be behind in the matter:

FRAT HOUSES GO DRY.

CHICAGO, Oct. 14.—Resolutions forbidding liquor in chapter houses of the Beta Phi fraternity were adopted at the convention of the order today. The resolution affects chapters at twelve colleges and universities in the middle West.

INTOXICANTS IN OUR COLLEGES.

We clip the following from the *Plain Dealer*:

BARB LIQUOR AT YALE; FACULTY SAYS FRATS AND CLUBS HEREAFTER MUST BE DRY.

NEW HAVEN, Ct., Oct. 22.—Notices have been sent out by the Yale faculty to all clubs, secret so-

cieties, and fraternal organizations to which Yale undergraduates belong, informing them that after Nov. 1 they will not be allowed to serve liquor in their club, society, or fraternity houses.

The faculty order is expected to end the social drinking of undergraduates which has been excessive at times.

Action is taken in connection with a new state law which provides all clubs or similar organizations which wish to serve liquor must obtain a special license. The Yale authorities do not desire undergraduate clubs to request licenses allowing liquor to be dispensed.

May the Lord be praised for the above. But does not this notice, given so publicly, show up a rather sad state of affairs in times past? If Yale makes such a confession, how about Harvard, Princeton, and others. See page 871, Oct. 15.

BOOZE CAUSES THE LOSS OF A STEAMSHIP.

Because her crew were intoxicated, a French steamship, loaded with ammunition, on her way to Nieuport, blundered into Ostend, and was sunk by the Germans.—*American Issue*.

KEVENHUK—IT SOMETIMES WORKS BOTH WAYS.

The cost of feeding the prisoners in the county jail during the two years while Lansing was dry was \$5600, while during the two ensuing years of wetness the cost of feeding them (at the same rate per person) was \$11,300. Quite a difference for a town of 40,000.—*American Issue*.

ANOTHER KNOCKOUT BLOW FOR CIGARETTES.

We quote the following from the *Akron Beacon*:

NORFOLK, VA., Oct. 1.—Captain Scales, commanding the naval training-station here, has issued an order banishing cigars from the government reservation. He hopes by this means to make recruits strong and active.

Temperance Department continued on p. 19, advertising section.

POULTRY DEPARTMENT

THE PHILO SYSTEM UP TO THE PRESENT TIME.

Will you kindly publish what you know of the Philo system of keeping poultry? I should like to keep a few hives of bees and a few chickens, just to furnish eggs and honey for my own table.

I have a friend who keeps quite a good-sized flock on the above system, claiming that it is a paying proposition when one is cramped for room as I am.

New Britain, Ct., Sept. 26.

X. Y. Z.

My good friend Philo has been demonstrating that chickens can be kept and a goodly amount of eggs secured when half a dozen or more are confined in closed pens 5 x 6. But the result very much depends on how much care is given them. They must have animal food in some shape as well as a variety of grains, and they must have, too, green food daily, or almost daily, or some substitute in the way of cooked or soaked alfalfa meal or red clover. Under

some circumstances, with loving care, the amount of eggs secured may be almost as great as if the fowls had a run outdoors. But the expense of food will be very much more, and the expense in the way of care, etc., if one counts his time worth anything. Huber has had six hens all summer in one of the little Philo coops; and he says that, before they began to moult, he thinks they averaged pretty nearly three eggs a day. This we should call a 50 per cent yield—three eggs from six hens. Now, if you could have a yard also where they could dig and scratch, say only 3 x 6 feet, it would be very much better, because you could bury some oats in this little yard, and let them dig them out. Our Ohio experiment station has made a test of fowls confined, and fowls running at large. I have not the figures now before me; but if I recollect

right, the hens with a good large yard laid about a third more eggs than those shut up in a small house. If you had a yard large enough so they could get green food and insects more or less, the expense for the grain might be reduced a third or perhaps a half. In our Florida home 100 fowls, young and old, had a run of three acres; and they get all over it every day or two.

One objection that has been made to the Philo system is that it seems cruel to keep fowls shut up in this way, as it is so natural for them to range at large; and where they have been in the habit of running loose, it *does* seem to be a hardship. But chickens

that have been shut up all their lives do not seem to mind it very much. While visiting Philo at his home in New York I said, "But wouldn't they *enjoy* it if they could once get out?"

By way of reply he opened one of the little coops, but none of the fowls ran out at all. Then he took two and tossed them out into the garden; but to my great surprise they ran right back into the coop. They did not feel at *home* outside. There is a difference in the breed, however. Some stand confinement very much better than others. Leghorns do not seem to be very well adapted to confinement.

HEALTH NOTES

And Jesus said unto them, This kind can come forth by nothing but by prayer and fasting.—MARK 9:29.

Dear Brother Root:—After reading your Health Notes, Oct. 1, I am prompted to ask you, as a follower of the Great Physician, why you never give the injunction that he gave his disciples in Mark 9:29 in curing difficult diseases. I have found fasting for a period of 36 to 40 hours, from all food, and even drink unless thirsty, when water is taken as often as desired, to be an unfailing specific for cough, colds, and the disposition to catch cold, catarrh, and ills of throat and nasal passages, and cure for deafness where the actual physical injury through inflammation has not been so great as to carry away some essential part of the "machinery," as you term it, of hearing.

In breaking your fast, eat as heartily as your appetite prompts of the easiest *uncooked* food to digest, which I have found to be a salad made of lettuce, celery, cucumber, cabbage, endive, or even turnips, any two of which, according to season, may be chopped up with raw apples or tomatoes, and dressed with a good salad oil and salt; and, if desired, a dash of lemon juice and honey.

For bread, chew slowly along with the salad some good hard biscuit, like hardtack, German pretzels, Swedish knäknä, or water crackers. This is for your *breakfast*. Give the hearty meat dinner the absent treatment—abstain from "meats offered to the idol" of one's belly, from pork, and from eggs. It has been said that no orthodox Jew who abstains from pork ever dies of cancer.

Your directions as to a daily washing of the whole body are good with one exception—that of the toothbrush. Your teeth and mouth will become *absolutely clean*, as soon as the alimentary canal has through systematic fasting, becomes clean. This cleanliness is indicated by the fact that the excreta becomes inoffensive in odor, and of a healthy yellow color.

If the teeth are unclean, with a bad taste in the mouth, it is a sure indication that the forty-hour fast should be resorted to at once and persisted in from time to time until this ideal condition of a clean mouth and alimentary canal becomes a settled condition, when the buzzing sounds in one's ears, with sore eyes, running noses, cough, colds, eczema, and so on, will "lift up their tents, like the Arabs, and silently steal away" without recourse to pills, gargles, washes, etc.

However, I have found it impossible to attain this ideal while keeping to three meals a day of cooked

food. One meal is better by far than three; and your idea of the apple supper is excellent. I find a vegetable diet, composed of half alkaline vegetables and half acid fruit the ideal thing, though I vary it with small quantities of the dairy products, good butter and cheese; but milk, almost never. Honey in the comb is enjoyed by me as a nectar from God.

The further along I go on the road to Wellville the further behind I leave meat and eggs, which I have identified as "meats offered unto idols."

JOHN A. WINTERBURN.

West Morris, Ct., Oct. 8.

My good brother, I agree with you in regard to the matter of prayer and fasting. Faith healing has had at different times many followers, and has, even at the present time; but I shall have to confess that I never noticed, until you called my attention to it, that the Savior recommended in a single sentence *fasting* as well as prayer; and I am sure my health has been very much benefited since I have used no *cooked* food, after noon time. Apples are certainly uncooked food, and the little cheese I use with them is uncooked in the sense that no cooking or heat is necessary for the last meal of the day. Mrs. Root often declares it is quite a saving of housework to be relieved entirely of the task of "getting supper." I personally, however, could not quite agree in regard to the vegetarian diet. Please remember I was for four years myself a vegetarian; and later on I was for *eighteen weeks* without any vegetable food whatever—lean meat and nothing else—not even an apple. I now use a little meat, but get along very well most of the time, even for several days, without any meat at all; and I think very likely I could adopt a vegetable diet exclusively, providing I could have plenty of milk and eggs. If I understand you correctly, you object to milk. I use milk both at breakfast and dinner, but only about half a cupful. If I take more I

sometimes find it necessary to stop the use of milk for several days. Your statement that no toothbrush would be needed if we fast often enough, etc., may be true. Of this I feel sure, that the mouth tastes bad, and the teeth become coated, much oftener when there is a disturbance in the digestive machinery.

HIGH COST OF LIVING; \$27 A BUSHEL FOR WHEAT, ETC.

I have said so much about making your own breakfast foods with a little hand mill, or boiling your wheat and other grains whole, that it may be a little wearisome. Here is something, however, from *Farming Business* that may wake some of us up in regard to the one chief cause of the high cost of living.

ONE CHIEF CAUSE.

Pampered palates form one of the chief causes of the high cost of living which has been causing so much worry to millions of people in this country alone. When wheat went to a dollar a bushel and beyond, professional paragraphers began to use up much good ink in claiming that the farmers, and the price they were getting for their wheat, were the chief cause for the high cost of living. Had they looked into the tin cans and paper sacks which contained a goodly portion of the food which they ate they would have seen a much greater factor than the price which the producer gets, and that is the price which the middleman and the handler get.

Simply for the sake of making the argument as simple as possible, let us take one thing for example, a thing which is found on the breakfast tables of so many people in this country—prepared breakfast foods. Professor E. F. Ladd, of the North Dakota Experiment Station, throws a revealing light on this subject of the cost of prepared cereals. When he bought a package of a widely used prepared wheat food the dealer informed him that the price had been advanced from 10 to 15 cents on account of the war. By making a simple calculation he found that when he ate it he was eating wheat at 45 cents a pound, or \$27 a bushel.

Many of our pioneer ancestors ate simply boiled wheat as a cereal food. It was very palatable and nutritious—even more so than most of the fancy cereal foods we get in waxed bags inside pasteboard cartons at a price of \$27 a bushel for the wheat from which they are made. Moreover, they had to work their teeth and their digestive apparatus more to handle the boiled wheat than we have to work ours to eat and digest these patent predigested foods of our day, and for that reason they were healthier than we are.

FRAUDULENT PATENT MEDICINES.

May the Lord be praised that our Department of Agriculture has seen fit to take hold of the medicine business and destroy their senseless drugs and punish the offenders. We clip from quite a lengthy article in the *Weekly News Letter*, Washington, D. C., the following:

It is pointed out that traffic in medicines for which false and fraudulent claims are made is not only an economic fraud of the worst kind in that

a worthless preparation that costs but a few cents is frequently sold for a dollar or more a bottle, but that health and even life are endangered by failure to secure the service of a physician in such serious diseases as tuberculosis, diphtheria, pneumonia, and scarlet fever until too late, because reliance may have been placed in the curative powers of some worthless preparation which is claimed to be a never-failing remedy. The deluded victim may not realize his danger until the disease has reached a stage too far advanced for even the ablest physician to cope with it. Effective treatment depends in most cases on applying it during the early stages of the disease.

After the above quotation a list of about sixty different medicines, some of them having quite a large sale, are mentioned as being suppressed. One great harm that these medicines do, as suggested, is that, even if the medicines are harmless, they induce people to defer consulting the family doctor until it is, perhaps, too late.

This *Weekly News Letter* from the Department of Agriculture is sent to periodicals, colleges, etc., with the understanding that our different agricultural papers shall send out warnings, making clippings, etc.

OXYDONOR AND ELECTROPOISE

One of our friends sends us the following which he clips from the *New York American*:

FRAUD ORDER AGAINST NEW YORK DOCTOR.

WASHINGTON, Oct. 16.—The Postoffice Department today issued a fraud order against Dr. Herschel Sanche, of New York, and the Oxydonor Sales Company, of Rochester, N. Y., Cleveland, Detroit, and Chicago. The order alleges that Dr. Sanche controls the company, which sells a pump guaranteed to transmit hydrogen into the human system with great curative powers. Postoffice Department officials charge that the scheme is a fraud. Dr. Sanche is alleged to have made \$1,000,000 from the sale of the pumps.

Did you ever? The reporter calls the humbug toy a *pump*; and then he says it is guaranteed to generate *hydrogen*. Well, it is probably just as well that way, and just as true. The world can rejoice that Dr. Sanche has come to a stopping-place. Years ago, when the venders of electropoise got to raking in the money, Sanche and some others as covetous got up a thing and called it oxydonor; then various other parties went into it also, all claiming they could "pump" oxygen through a wire, and that is why "oxy" is put before all their make-believe traps. The writer who sends us the clipping says his wife had an aunt who was persuaded to buy an oxydonor to cure *cancer*. She of course died in spite of the "treatment." If it is true that Dr. Sanche has "robbed sick people" to the extent of a *million dollars*, he can well afford to "let up" a while.

HIGH-PRESSURE GARDENING

SWEET CLOVER—SOWING IT IN ROWS, AND CULTIVATING IT LIKE CORN.

We are today, Oct. 4, cutting our corn; and the sweet clover seeded between the rows of corn that I have several times mentioned is now a thing of beauty. There is not a bare spot in the field, and the clover is almost knee-high. There is one objection to this method; and that is, the corn, as fast as it is cut, must be carried off out of the field or a great lot of the clover will be injured or destroyed where the corn was cut and shocked. As our field is rather long and narrow, the cutters, as they cut the corn, carry it out at the sides and ends. It is somewhat expensive; but I am so anxious to see this field of clover do its best that we are risking the extra expense. Now, here is something queer from *Field Sense*, published by the Field Seed Co., of Shendoah, Iowa:

SWEET CLOVER IN MONTANA.

You remember last spring I told you about a man up in Montana, right next to the Canada line, who was growing alfalfa in rows and using 5 ounces of seed to the acre. This is the same man, but this isn't alfalfa. This is sweet clover. He grows it in rows the same way, using less than 1 lb. of seed per acre, and cultivating it like corn. He grows the alfalfa the same way, but in the pictures he sent me it had fallen down across the rows till you could not tell where the rows were, and it looked like an ordinary flat field of alfalfa. He grows Grimm exclusively, and expects to cut his whole 130 acres for seed.

You will notice from the above that it is a tremendous saving of seed. In our corn-field we used toward 15 lbs. of hulled seed to the acre. I now feel sure that half as much or even less would have done just as well, especially with the new scarified seed, and, in fact, *every* seed seems to have come up within three or four days. Perhaps if the clover is grown for feed there is an advantage in thick seeding. My impression is, we get almost as much seed from the sweet-clover plant where put in only as thick as hills of corn. When it comes to cutting it for hay, no doubt the thick seeding would be better. Who can tell us about this? As the hulled seed is worth now from 20 to 25 cts. per lb., taking only one pound in place of 15 would go pretty well toward covering the cost of running the cultivator between the rows.

SWEET CLOVER FOR BRINGING UP THE CONDITION OF THE SOIL, ETC.

I clip the following from the *Alfalfa Journal*:

On a recent automobile trip the farmers near Bloomington, Ill., visited the large sweet-clover field

on the Homer Hull farm. Fourteen acres of sweet clover were seeded with oats last year. This was not standing over a foot high. Mr. Hull seeded forty acres of red clover in the oats last year, and failed to get a stand. This seems to be a common result in this vicinity during the past few years, and that is why so much sweet clover has been planted. Sweet clover is being used in the rotation. The first crop is cut and allowed to lie on the ground for fertilizer. The second crop is used for seed production. The straw will be hauled back on the land. It is estimated that the first cutting and the straw will amount to eight tons of manure to the acre, besides the good condition in which the soil is put by the use of this method. Sweet clover seems to make a better top and root growth than red clover, and the farmers in this vicinity are beginning to think that they can depend on the sweet clover more than the old-fashioned kind.

Just think of it, friends! equal to eight tons of manure to the acre to benefit the land while you get a crop of seed besides. Our own experiments would indicate the above as being not far from right.

THE DASHEEN BUSINESS IN FLORIDA AT THE PRESENT TIME.

The following was sent us without any indication as to what paper it was taken from:

FLOUR FROM DASHEENS; FLORIDA FINDS A NEW BREAKFAST FOOD.

CRYSTAL SPRINGS, FLA., Sept. 17.—A manufactured products of dasheens is being used here, and perhaps elsewhere, as a breakfast food, and people who have tried it with the usual breakfast-food trimmings say that it is about the smoothest article in that line imaginable. Dasheens have a flavor suggesting chestnuts, and the breakfast food manufactured from dasheens is said to have a delightful nutty flavor that makes friends of the eater right away.

This information was brought out at a meeting of dasheen-growers for the purpose of considering the advisability of installing a small flour-mill for the manufacture of dasheen flour and other products.

At the meeting a letter was read from Prof. R. A. Young, of the Bureau of Plant Industry, United States Department of Agriculture. Mr. Young was in charge of the dasheen-growing experiments for the agricultural department at Brooksville a few years ago, and has visited Crystal Springs twice in the interests of that industry.

THE STRIPED SQUASH-BUG; HOW THEY MAN-AGE WHERE THEY GROW CUCUMBERS FOR THE GREAT PICKLE-FACTORIES.

If Mr. Root will dust his squash and pickle plants after every rain with tobacco dust and lime, half and half, he will find it a sure remedy for the striped bugs. We grow cucumbers for the Hinze pickle-factory, and we all use the remedy here.

Bowling Green, O., Aug. 23. U. E.LOY.

Very likely the above will answer, or at least help; but when it rains every day, or even every other day, it will not only take quite a little "dust," but keep one busy.